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WITH SUPPLEMENT.

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on whose character and activities he touched lightly and tactfully. His medical work had also been conducted in ships, while he had once occupied a consulting room and a waiting room in Wimpole Street, both of which, however, he had found to come under the latter title. The remaining toasts were the Chelsea Clinical Society; the Allied Societies, with special reference to the Hunterian Society, the dinner meetings of which had been copied by the Chelsea Clinical Society; and the health of the president, who said that the society aimed at being of particular value to general practitioners. A gratifying feature was the excellent attendance at its meetings during the past year, while the membership had also reached its highest point so far. The prospects for the future were very good.

At the third Pan-Pacific Scientific Congress, to be held at Tokyo from October 30th to November 11th, the following subjects will be discussed in the medical section: (1) the prevalence, prophylaxis, and treatment of diseases on the Pacific Coasts; (2) the prevalence, symptomatology, prevention, and treatment of dysentery, ankylostomiasis, and Japanese schistosomiasis; (3) the climate, feeding, clothing, and power of resistance of the inhabitants of different parts of the South Sea Coast.

Dr. Hamel, President of the German Health Department, has been elected member of the Commission for Combating Tuberculosis appointed by the Committee of Hygiene of the League of Nations.

The late Mrs. Margaret H. Hamilton-Fallowes, who died in August last leaving estate amounting to nearly £2,000,000, has bequeathed £1,500 to the Boscombe and West Hants Hospital to endow a bed in her memory, and £1,000 each to the Royal Waterloo Hospital for Children and Women, the Royal Surrey County Hospital, Guildford, and the Royal Ophthalmic Hospital.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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QUERIES AND ANSWERS.

Recurrent Monsters.

"Pelvis" asks for suggestions for the treatment of the following case: A woman, married three years, now aged 29, has twice become pregnant. The pregnancies terminated at seven and six and a half months respectively with hydramnios, anencephaly, spina bifida. Her husband is about 40. There is no suspicion of venereal trouble on either side. This woman suffered from spinal scoliosis as a girl. There is still some deformity and apparent tilting of the pelvis.

Recurrent Boils.

Dr. D. McAskie (Southsea) writes: If "W. L.-C." (Torquay) (Journal, October 16th, p. 717) will, as soon as he sees a boil appearing, apply 88 plaster-mull, the boils will be at once aborted.

Surgeon-Lieutenant L. P. Spero, R.N., states that he has found the following line of treatment of recurrent boils very satisfactory: (1) The urine is often strongly acid; if so, it should be rendered alkaline with potassium citrate and sodium bicarbonate (large doses are necessary sometimes), and then endeavour to maintain the urine neutral, or, at all events, to diminish the acidity as much as possible. (I am presuming the question of diet has been tackled.) (2) Take a piece of lint larger than the boil and cut a very small hole in the centre. Smear ung. hydrarg. ammon. lil. on the lint and apply to the boil and surrounding area, so that the aperture is over the centre or that part which is most likely to "point"; now soak a piece of gauze in 1 in 20 carbolic, squeeze out and place over the aperture, covering all with a thick pad of wool and bandage. This simple dressing is most effective and should be done once or twice a day. It is said, I believe, that hot fomentations tend to reinfect. I have had far better results since giving them up entirely.

Warts and Eggs.

Dr. C. Luther Batteson (Watford) writes: In answer to Dr. Leonard Williams's inquiry in the Journal of October 23rd (p. 763), it used to be a common superstition in my young days in the East End of London that drinking water in which eggs had been boiled would cause warts. I have known people make tea or cocoa with the water in which eggs had just been boiled, but have no evidence that warts were ever caused thereby.

Income Tax.

Assessment.

"J. W. G." refers to the reply to "A. G." in our issue of October 2nd, 1926, and asks for a fuller explanation of the distinction referred to therein.

*** The case of Tennant *v.* Smith (*Appeal Cases*, 1892, p. 150) decided that if the holder of an office receives a salary and, in addition, an advantage—such as free residence—of which he is obliged to avail himself, and which he cannot transfer to others for profit to himself, then he is assessable in respect of his salary only. In the later case, Cordy *v.* Gordon (41 *Times Law Reports*, p. 401), Rowlatt, J., drew a distinction between the above facts and the case where a person is paid a salary and out of that salary has to pay a counter amount to secure himself some necessaries which his employers think he ought to have in a certain form; in such a case the gross salary, and not the excess over the counter-charges, is held to be assessable.

LETTERS, NOTES, ETC.

Potassium Chlorate in Congenital Goitre.

Dr. R. Vernon Bailey (Manchester) writes with reference to Dr. R. K. White's article on potassium chlorate and congenital goitre (Journal, August 14th, p. 332) to point out that Professor W. E. Fothergill of Manchester published the description of a similar case in the British Medical Journal, 1903, i, p. 847, and also in the *Journal of Obstetrics and Gynaecology* in January, 1904, under the title of "Maternal eclampsia: hypertrophy of foetal thyroid."

Treatment of Neoplasms.

Mr. G. S. Thompson, F.R.C.S. (Sydney, N.S.W.) writes: In view of the recent articles and work on the treatment of malignant growths and the claims to priority therein, I wish to call attention to the special (prize) article written by me in 1909 from Kimberley, South Africa, and published in the *Hospital* (London) on June 4th, 1910 (pp. 283-84), in which I elaborated my theory and practice of the treatment of neoplasms by inoculation of growth substances to produce active and passive curation, either by inoculating the patient with growth substance (active immunization) or immunized serum (passive immunity), etc.

St. Kilda.

Dr. Robert Gordon Macdonald (Dunedin, New Zealand), who tells us that it is now some fifty years since he joined the British Medical Association, sends the following note on the article on St. Kilda, published on July 10th:

I visited St. Kilda many years ago when on a visit to the Old Country, and was much interested in the place and its people. The "shore cough" you refer to was, and probably still is, quite common throughout the more remote Highlands, both on the islands and mainland. The people spoke of it as "Cnatan na gall," or Saxon's cold. On settling in Dunedin over forty years ago I thought I would never again hear of "Cnatan na gall," but it is quite common here. When shepherds from far inland sheep stations visit town in winter, which is their off season, they invariably develop "Cnatan na gall" on the second or third day of their visit. The Saxon shepherds call it "'flu," while the Highland shepherds still call it "Cnatan na gall." All these people live in a germ-free atmosphere at home, but when they meet strangers or visit towns they invariably develop feverish symptoms with cough. Though St. Kilda and Dunedin are about the extreme ends of the British Empire, they are one in "Cnatan na gall."

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 203.

Thomas Vicary Lecture
ON
THE SIGNIFICANCE OF ANATOMY.

Delivered before the Royal College of Surgeons of England
BY
G. ELLIOT SMITH, M.D., D.Sc., F.R.S.,
Professor of Anatomy, University College, University of London.

Mr. President and Fellows,—In the first place I must express to you, Sir, my appreciation of the unexpected distinction of being invited by your predecessor, Sir John Bland-Sutton, to deliver this address.

It may seem strange that in this museum where the Hunterian Collection is housed I should discuss such a subject as the significance of anatomy, the scientific and practical value of which as the essential foundation of surgery John Hunter has surely established once and for all. But no one who is familiar with the attitude towards morphology which is widespread at the present time can doubt that there is need for an appreciation of the part the study of anatomy has played in the history not only of biology and medicine but also of civilization as a whole, and the even greater services it still remains for the morphologist to achieve.

At the present time it is not only the physiologists and clinicians who fail to realize the importance of morphology, but also some anatomists and even more biologists bow the knee to the strange fashion of depreciation. In some famous medical schools it is considered almost an offence on the part of an anatomist or biologist to devote himself to the essential business of his subject, and work at real anatomy. The interest and importance of experimental embryology and the fascination of this method of interrogating the processes of nature everyone will readily admit. But even the fullest recognition of the value of such work and of the brilliance of its pioneers does not lend any sort of justification for the strange assumption that anatomists who devote their attention to other no less important parts of their subject are wasting their time in obsolete diversions. The situation has been so accurately diagnosed by Professor H. S. Jennings of the Johns Hopkins University that I make no apology for quoting him. Referring (*Science*, July 30th, 1926, p. 98) to anatomy as "the physics of organism," he said:

> "It requires separate consideration, both because of its extreme importance for zoological experiment, and because it was minimized, nay, despised and rejected of the physiological impulse in zoology. This is the role of physical arrangements of material in organisms; gross physical arrangements as well as minuter ones; what is variously called organization or structure. Structure had become the object of one of those epidemic phobias that beset scientific men as they do other men. In the days before experimentation zoologists had given a romantic and mystical turn to the phenomena of structure in organisms; they built upon it a great edifice which was called morphology. They discovered in organic structure plans, styles, comparable to the diverse styles of architecture—to Gothic, Romanesque, Classical, and the rest. But the physiologists said: This may be pretty, but is it Science? It is not. Out with it. We shall have nothing to do with morphology; it is fantastical. And throwing away the baby with the bath water, they largely rejected also the role of structural arrangements, even in experimentation. This it was that led to most of the adventures or misadventures of the sort I have recounted, in the progress of experimental zoology. It is important that this phobia should no longer dominate our work. Consider for a few moments the role of arrangements or organization in experimental work, and the consequences of its neglect.
>
> "Structural arrangement, organization, is of course physics; we find it playing a very great role in physics as that science advances. The properties of atoms depend upon the arrangement of electrons; of molecules on the arrangement of atoms; of crystals on the arrangement of molecules. In organisms there is a great extension of this. They are bodies in which the arrangements have become complex and differentiated, and have passed into the grosser, the visible features as well as in the finer details. They are bodies in which there is an almost infinite variety of these arrangements, as we pass from species to species. They are systems of structures. In consequence, their properties and the way they respond to experiments, depend largely on these systems."

This so admirably explains the real significance of morphology as the foundation of all science, physical as well as biological, that it is hardly necessary for me to add to it. It also emphasizes the fact that when dissociated from morphology so many lines of experimental research soon become exhausted.

The disparagement of anatomy extends also to morbid anatomy, and at the present time in many schools, with a few conspicuous exceptions, medicine and surgery are suffering from the neglect of adequate morphological inquiry into the reasons for diagnostic and therapeutic failures.

The eponymous label attached to this lectureship is not without significance. Thomas Vicary was the Court surgeon of Tudor kings and queens, and he left behind him an obsolete treatise on scholastic anatomy, based upon the writings of Lanfranchi and Mondeville in the fourteenth century, which completely ignored the revolution that had been effected in the whole outlook and discipline of anatomy by Vesalius twenty years before Vicary's death. Like Thomas Vicary, the anatomist at the present day has retained in his teaching an undue amount of mediaeval method and material that has no justification either on the ground of its practical or scientific value. In paying respect to these antiquated conventions—what earlier bookmen wrote rather than what the body itself reveals—he has neglected the great opportunity of bringing the subject of anatomy into closer correlation with the needs of the times. The possibilities for great achievements in anatomy were never so great as they are to-day; and the need for men who will devote their whole time and energies to the exploitation of these rich veins of ore was never so urgent as it is now in England. It was a great step forward when, a generation ago, men were appointed to devote their whole time to research and teaching in anatomy. The problems to be solved are so complex, and the technique of inquiry so exacting, that those who work at the subject must be wholly absorbed in it.

It will help us to realize what anatomy has done for mankind and civilization if we glance at certain aspects of its history. So far as the development of a systematic study of the human body is concerned, the Ptolemaic school at Alexandria, founded by the disciples of Aristotle three centuries before Christ, represents the beginning of the story. In the museum, which was the essential achievement of that school, the discipline of true science was developed and organized. This Egyptian town gave the world its greatest heritage—namely, the scientific method. This decisive advance in the history of civilization extended to all sciences. It was the triumph of the inductive method based upon observation and the formulation of laws to give expression to the observed facts as generalizations. Experimentation was the complement of the inductive method, but not the real foundation of it, for without morphology experimentation would be quite inconclusive and frivolous.

In studying the development of the scientific school at Alexandria it is important to remember that the anatomical researches of Herophilus and Erasistratus played a very important part, not simply in establishing the importance of observation in anatomy itself, but in the demonstration of method for all the sciences. As Galen, a student of the Alexandrian school, pointed out five centuries later, the study of the phenomena of life is based upon the solid foundation of anatomical observation, experiment, and clinical observation. Until the anatomists had begun their work the profession of medicine lacked any real discipline and professional standard. Galen attributed to an ignorance of anatomy on the part of medical men the lack of success in the treatment they often administered.

The special force of these observations is revealed more clearly if we push back the inquiry to the dawn of civilization, more than thirty centuries before Aristotle. Then it becomes clear that the study of mankind (and in particular the phenomena of life and death) was indeed the sole aim of all science and art.

The farther back we go in the history of civilization the more definitely and exclusively anthropocentric all inquiries into natural phenomena become. There is no innate curiosity in mankind to study the forces of nature; but such things as seemed directly to affect his own welfare appealed to man's interests. Man did not at first study physics, astronomy, zoology, and botany simply for the intellectual joy of discovery, but so as directly to benefit himself other than by a reputation for wisdom. In particular attention was paid to the problems of life and death, the solution of which might enable man to safeguard his own existence and avert the risks of death.

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inquiry. When they ask what use can be assigned, say, to the morphology of the lizard's chondrocranium, they thereby show a failure to appreciate that the great story of evolution is based upon the linking-up of the facts of morphology and palaeontology. No full understanding of the behaviour of man or any experimental animal can ever be attained without a knowledge of his or its origin and evolution.

The Cell Theory.

What Professor E. B. Wilson calls a milestone of modern scientific progress—the cell theory enunciated by Scheiden and Schwann in 1838-39—stands forth as one of the greatest achievements in biology, which marked the beginning of a new era in knowledge and its application in practice. Goodsir, Virchow, and their successors used this conception for the analysis of the structure of organisms, and in doing so opened far-reaching vistas of progress in every department of biology and medicine. In more recent times the evidence afforded by the behaviour of chromosomes afforded anatomical corroboration of the results of experimental breeding, and compelled even the geneticists to admit that morphology had its uses.

The Present Position of Anatomy.

Even if anatomy had achieved nothing more than make vital and essential contributions to the great revolutions in thought effected by William Harvey, John Hunter, William Sharpey, Rudolf Virchow, and Charles Darwin, its place in the forefront of progress would be established. But its claims are much wider than that. Its influence was in fact universally felt in the advance of civilization. It is not, however, the place of anatomy in history with which I am chiefly concerned to-day. It is rather its present position and future development that I want to discuss.

In your museum the word "physiology" is, significantly enough, used to connote comparative anatomy. This uncommon usage expresses an important truth. For no method more clearly reveals the functions of structures than the correlation of their varying size and structure in animals of differing capabilities.

In his comparative study of the heart, and in particular of the bulbus cordis, the present conservator of the museum has shown, perhaps more clearly than in any other of his numerous works, that the spirit of John Hunter is still alive here. For the use of comparative anatomy, in conjunction with the study of the functional meaning of the varying arrangements, to illuminate the normal morphology and pathological states of the heart would have delighted the founder of the museum. Sir Arthur Keith's greatest service to science, however, has been his persistence in keeping constantly before the anatomist the urgent need for the study of function as an essential part of the interpretation of structure. From its foundation the principle has been emphasized in your museum. The use of the term "physiological series" for the collection of comparative anatomical preparations is a happy illustration of the real spirit of Hunter's work.

Take, for example, the case of the cerebellum, which I discussed in the Arris and Gale Lectures in this room six years ago. Some physiologists (for example, Professor Magnus in his Croonian Lecture to the Royal Society this year) are now proclaiming that their experiments do not reveal any functions for the cerebellum; but anyone who walks through the gallery of this museum, where the wonderful collection of vertebrate brains is exhibited, can see for himself that Nature's great experiments in modes of posture and locomotion have left their impress so clearly in the cerebellum that he who runs may read. So also in the morphology of the brain as a whole, the varying sizes and histological structure of its parts express the habits and capabilities of animals and reveal the broad lines of their functions.

In his great treatise *The Integrative Action of the Nervous System*, which opened a new era in the interpretation of the brain's meaning, Sir Charles Sherrington calls the cerebrum "the ganglion of the distance-receptors," by which are initiated and guided long series of reactions of the animal as a whole. Unfortunately he did not avail himself of the facts of comparative anatomy to elucidate and reap the full harvest of his illuminating idea. Here again it requires no difficult technical procedure or abstruse knowledge to discover facts of fundamental importance, which have escaped those who neglect to give due consideration to comparative anatomy. It is only necessary to look at a comparative collection of brains such as this museum contains to see at a glance that the most primitive type of cerebrum is not equally the ganglion of all the distance-receptors, but predominantly of the one concerned with smell. The part of the brain that eventually became the organ of mind is primarily a receptive centre for olfactory impressions, and the instrument whereby such experience can influence behaviour. The whole arrangement of the brain is dominated by this fact, which is fully borne out by experiments on the dog-fish such as those of Professor Parker of Harvard University.

Considerations of structure cannot be ignored with impunity by those who aim at understanding function. After all, the aim of experiment is to interpret the working of an instrument, and the mode of construction of that instrument cannot be neglected. It is not, however, morphology alone that is essential, but also considerations of phylogeny, the relative place in nature and affinities of the experimental animal, the appreciation of which is based upon morphology. In all investigations considerations of evolution are matters of fundamental importance, and are especially significant in the case of the nervous system, which undergoes profound changes in the course of its history. In such researches as those now being carried on by Professor Magnus and his collaborators the differences of behaviour in various grades of animals are being forced upon their attention. But the full fruits of much patient work are being lost by many physiologists from their neglect of the phylogenetic factor.

How fruitful researches can become when due importance is given to the facts of evolution is revealed in the splendid experimental and clinical researches of Professor Brouwer of Amsterdam. By arranging the experimental animals in an orderly series he has been able to demonstrate the progressive changes that occur in the lateral geniculate bodies, the oculomotor nuclei, and the cerebral cortex in a series of vertebrates, and has shed a brilliant light upon a series of problems of fundamental importance to the morphologist and clinician. In particular, his work illuminates the process of evolution of the brain that ultimately brought about the emergence of man's high intelligence. Dr. Brouwer's researches have given the lead in this country to Dr. H. H. Woollard and Mr. W. E. LeGros Clark to work the rich vein of ore opened up by his genius.

The New Outlook in Anatomy.

As knowledge advances in physiology, pharmacology, biochemistry, and clinical medicine and surgery a host of new problems arise, for the solution of which anatomy provides in many cases the field of research, and in all cases the coping-stone of objective demonstration, and becomes the last court of appeal for its validity—the translation of elusive modes of reaction into the concrete terms of structure.

Experimental physiology aims at explaining the behaviour of living organisms and tissues, and if it is successful its results must be expressed in terms of the constitution of the organism and its parts. Morphology is not only the foundation of experimental research—the territory in which the work is done and the study of the physical properties of the material investigated—but it also affords the ultimate test of the significance and validity of the results attained. Hence both kinds of investigation are essential and complementary the one to the other. The morphologist and the physiologist should work in close co-operation the one with the other, and the clinician has opportunities for applying their results and making fresh observations suggesting new problems for the morphologist to investigate. How fruitful this co-operation of workers in the three fields can be is shown by recent research in neurology, by such bridge-builders as the Dutch investigators Magnus and Brouwer, who in different domains of neurology have revealed the importance of the combination of morphological, experimental, and clinical methods in dealing with complex problems.

The results of a great deal of experimental and clinical work are being interpreted to-day in defiance of the clear

For example, celestial phenomena at first interested man solely because the moon seemed to control the physiological periodicity of women and the life-giving functions. The sky, therefore, was believed to regulate and measure the duration of life, and was studied for the purpose of controlling human destiny—a sort of life insurance of the individual who made the inquiries. It can be shown that in a similar way all man's early nature studies were self-centred, and in the last resort were related to the expressions of life in his own body—the heart, liver, kidneys, the breath, the blood, the moisture, and the odour of life—the safeguarding of which was the underlying motive of all early speculation and belief. Several millennia before man systematically studied anatomy he was building up the fabric of civilization under the influence of doctrines based upon his ideas of the functions of his heart and blood, his breath and moisture, the placenta and the "life-substance." It would, in fact, not be an exaggeration to claim that civilization was evolved out of man's endeavours to understand the constitution of his own body and to preserve the life that animated it.

All learning was at first focused on the preservation of life. As the Greeks expressed it many centuries later, the healer was a naturalist (physician, from φύσις=nature)—one who studies the forces of nature to safeguard life. Throughout the ages the essential doctrines of philosophy centred around the anatomical facts of the anatomy of the brain and heart, as the means of interpreting thought and behaviour.

But having thus referred to the fundamental significance of anatomical studies in the history of civilization, it will now be more illuminating to cite certain illustrations that have some direct bearing on medicine.

WILLIAM HARVEY AS AN ANATOMIST.

In his Harveian Oration a fortnight ago the President of the Royal College of Physicians (Sir John Rose Bradford) gave an eloquent exposition of the significance of the experimental method and of the debt of medicine to Harvey for having introduced it. Thanks largely to the work of Harvey, to quote Sir John's conclusion, we may claim that medicine has a scientific status as a branch of natural knowledge.

In this connexion, however, we should not overlook the fact that Harvey himself called his magnum opus *An anatomical dissertation on the movement of the heart and blood in animals*, and that he was an anatomist, a pupil of Fabricius of Aquapendente, under whom he worked for five years at Padua, when he was demonstrating the existence of valves in the veins. Harvey used his master's picture of these valves to illustrate his own book; and it is clear from his writings that this anatomical fact formed the solid ground upon which was based the great achievement that at the beginning of the seventeenth century transformed the whole scientific outlook on the human body.[1] On the other hand, Sir Charles Sherrington has summed up the experimental investigations of a generation on reflex action in terms of structure.

The state of anatomy in England at the time when Harvey introduced into it the new life of the scientific method is revealed in the fact that Vicary's mediaeval nonsense was still in circulation as a textbook of anatomy at the time when Harvey brought back from Padua the methods of comparative anatomy Fabricius was inculcating. Harvey was none the less an anatomist because he resorted to experiment to test the meaning of the arrangements revealed in the dissection of the body, as every anatomist should in order to interpret anatomical facts. The experimental degenerations in the nervous system, for example, are devices for discovering facts of structure.

WILLIAM SHARPEY.

Another British anatomist, who like Harvey was a student of the Paduan school, invented the modern methods of practical physiology at University College. William Sharpey's disciples, Sir Michael Foster, Sir J. Burdon-Sanderson, Dr. W. H. Gaskell, and Sir Edward Sharpey-Schafer, carried their master's methods and his inspiration into other British universities. But, unfortunately for anatomy, these anatomically trained physiologists insisted on retaining microscopic anatomy as part of their subject, to the grave injury of anatomy in this country. It is worthy of note that until the time of Sharpey there was in England no separation between anatomy and physiology; and it is a consideration of fundamental importance to recognize that each of them should be free to employ any technical methods that promote its particular aims. For anatomy is not simply descriptive; it aims at understanding and interpreting the meaning of structure, and experiment is one of the necessary procedures for elucidating structure. In the school where Sharpey accomplished his great pioneer work efforts are being made to retrieve the disaster he unwittingly inflicted upon his subject. By bringing the two departments into close contact as a single unit, and by integrating the two subjects into one discipline, it is hoped to break down the artificial barriers between the investigators of structure and function.

JOHN HUNTER.

If Harvey laid the foundation of a real science of medicine, John Hunter can with equal truth be said to have accomplished a like service for surgery. His principles were established on the basis of a wide comparative study of anatomy and the phenomena of growth. By investigating the means adopted by Nature for dealing with the infinite variety of problems that arise in the animal economy, to use a favourite word of his, Hunter discovered methods to imitate in surgical procedure. He raised surgery from the empiricism of the barbers to become a craft inspired by the methods of true science and a technical skill controlled by reason and understanding.

The late Mr. Stephen Paget refers to the work of William and John Hunter on the lymphatic system as a new truth of vast importance, second only to Harvey's discovery of the circulation of the blood; and in estimating its significance he uses the words so many writers have applied to Harvey's achievement: "it changed the whole character of medical science and practice." That the lacteals, which carry food products into the blood, were absorbent vessels men knew already, but they had not realized that the whole body, every organ and tissue of it, is penetrated and drained by a special system of vessels to bring the fluids in the tissues back into the blood stream. It is not necessary for me to say anything to impress upon this audience the importance of the lymphatic system in surgery and the value of the pioneer work of the Hunter brothers. A vast amount of detailed work on the lymphatic vessels and glands has been accomplished in recent years, and valuable light has been shed, especially by our American colleagues, upon their developmental history. But the satisfactory solution of the controversies that have arisen as to the interpretation of the meaning of these observations will not be attained until we return to comparative methods and study the phylogeny rather than the mere ontogeny of the system.

The brilliant research on the lymphatic system of *Lophius* that has recently been accomplished in this museum by the physiological curator, Mr. Richard H. Burne, is an encouraging sign that this great work is being carried on in its appropriate setting.

CHARLES DARWIN.

If Harvey introduced a new era in medicine and Hunter in surgery, Charles Darwin gave the whole world of learning a new outlook.

The recognition of the reality of evolution effected a revolution, not simply in biology, but in every field of intellectual work. Although Darwin's work was inspired primarily by what we now call nature studies, it is clear that the foundation of the argument, without which he would not have been able to convert people to accept his views, was represented by the facts of comparative anatomy and embryology. He himself says in the *Origin of Species* that morphology is the soul of natural history.

Darwin's achievement gave a new orientation and a new meaning to morphology. What is not generally recognized by physiologists at the present time is the vast scope of evolution and the significance of processes that took many millions of years to effect. They do not seem to appreciate that only an altogether insignificant fraction of the great natural processes is susceptible of experimental

vitamins on growth and metabolism will in the future be tested, as for some years in California Professor Herbert M. Evans has been testing their potency.

The knowledge of the arrangements of the tracts in the spinal cord that has been acquired within recent years seemed at first to have little more than an academic interest, or at most a use in diagnosing lesions beyond the scope of treatment. But in 1911 Dr. Spiller suggested that the knowledge could be put to the humanitarian purpose of relieving the terrible sufferings of patients with inoperable cancer. In the *Archives of Surgery* three months ago Dr. M. M. Peet has described the truly wonderful results obtained by cutting that part of the antero-lateral column of the spinal cord which conveys impulses provocative of pain. Thus the unfortunate victims of incurable disease can get relief from their suffering without resort to drugs. Such a technical procedure has the advantage over section of posterior nerve roots because it does not deprive the parts of all sensation, and the patient is unaware of any abnormal feeling.

During the last ten years thorough investigation of the effects of nerve injuries in soldiers and the correlation of evidence so obtained with the facts of anatomy has enabled Professor Stopford to extend and clarify our knowledge of the arrangement of the sensory nerves and has given the surgeon new and exact methods for the diagnosis and prognosis of nerve lesions.

Only four years ago the pancreas used to be cited as an example of an organ which when diseased could give rise to such profound changes in the whole organism as we know in diabetes without revealing any structural indications of disease. But we now know that this is no longer the case. The morphological changes in the islands are clear enough once one knows where to look for morbid changes.

The anatomical localization of the lesions of encephalitis lethargica and morphological studies to determine the sites of injuries to the mid-brain and hypothalamus that in experiments and clinical cases give rise to definite reactions of body and mind will eventually give us a new insight into the physical factors concerned with personality, and also the neural processes concerned with the manifestations of the common symptoms, such as raising of the body temperature, nausea, etc., in grave constitutional diseases with which every medical practitioner is daily concerned.

These instances chosen at random are enough to indicate that in the near future anatomy promises to become the stepping-stone to a new revelation of knowledge, which will illuminate the whole field of human endeavour.

In this address I have endeavoured to suggest the vastness of the opportunities that now present themselves in anatomy, and how vitally they affect the progress of surgery, not merely the mere craft of operating, but also the wider problems of diagnosis, prognosis, prevention, and treatment. This College has the power actively to promote progress on these lines, which I hope you will permit one who is beyond the pale of your membership to mention. By means of the primary examination for its Fellowship it can insist that the rising generation of British surgeons is inspired with the true spirit of understanding of the human body and is alert and open-eyed to appreciate the great vision that is about to be revealed. Instead of helping the persistence of the mediaeval conceptions of anatomy, it can encourage the development of an anatomy that deals with really vital problems. The College has in its great museum the most valuable instrument for promoting the study of anatomy on right lines. The growth of the collection started by John Hunter is one of the great scientific achievements of the last century; under the direction of Sir Arthur Keith the opportunities for the comparative study of anatomy have been brought to a higher pitch of efficiency than ever. The College has it in its power to induce the candidates for its Fellowship to avail themselves of this wonderful instrument that is now too much neglected, and in doing so it will enhance the importance of the College itself and raise the standard of the science and practice of surgery.

References.
[1] Charles Singer: *The Evolution of Anatomy*, 1925, p. 174.
[2] Quoted from Jules Soury, *Système nerveux central*, 1899, T.1, p. 407.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTION OF LARYNGOLOGY AND OTOLOGY.

A. Brown Kelly, M.D., D.Sc., President.

DISCUSSION ON THE TREATMENT OF MALIGNANT DISEASE OF THE UPPER AIR AND FOOD PASSAGES.

OPENING PAPERS.

I.—F. J. STEWARD, M.B., M.S.Lond., F.R.C.S.Eng.,
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Surgical Treatment.

The subject of this discussion is so vast that no individual speaker can attempt to deal with more than a small section, and even then anything in the nature of detail is not to be thought of.

In the time at my disposal I propose to consider briefly some of the general principles involved in the surgical treatment of malignant disease of the mouth, fauces, and the oral and laryngeal portions of the pharynx. These will be considered under four heads: (1) selection of cases; (2) preparation for operation; (3) the operation; (4) after-treatment.

Selection of Cases.

As regards suitability for operation, cases fall naturally into three groups—favourable cases, doubtful cases, and hopeless cases.

The group of really early, favourable cases is a small one—10 per cent. of the total or less—and includes those in which the primary growth only involves a limited area, no enlarged lymphatic glands are palpable, and the general conditions are good. In the majority of such cases operation results in apparent cure, but even here it is easy to be too optimistic—for instance, the smallest epithelioma of the tongue I ever saw led to the death of the patient from secondary deposits within three months.

Doubtful cases constitute the majority—I should say about 50 per cent. of the total. Here it is usually a question of giving the patient a chance, and provided that the growth can be completely removed without too great interference with function, there is a chance of cure, a probability of a considerable respite, and almost a certainty of alleviation, even though the primary growth is extensive and the glands on one side of the neck are definitely invaded. The actual site of the growth is largely immaterial, for if a suitable method of approach is adopted the growth can usually be so completely exposed to view that its removal is comparatively simple. About four in every ten cases I see are obviously hopeless, either on account of the extent of the primary growth, or of the glandular involvement, or both. Even here, however, a purely palliative operation may be indicated—for instance, the removal of a tongue that has been largely converted into a fetid, bleeding ulcer, and is associated with extensive glandular disease, or the destruction of a widespread ulcerating growth by diathermy, will quite often give the patient several comparatively comfortable years.

Perhaps the most difficult decision which has to be made relates to the group of doubtful cases which more nearly approach the hopeless class. I can only suggest that every factor which has a possible bearing on the question must be taken into consideration and carefully weighed in the light of experience. While desiring, on the one hand, to avoid subjecting the patient to a trying ordeal which is foredoomed to failure, yet, on the other hand, it is necessary to be careful not to let slip the chance of a brilliant success.

facts of structure. The recognition of the significance of morphology is of vital importance as a preventive of such errors. It can also be shown that a lack of anatomical knowledge at certain epochs in the history of civilization was responsible for hampering progress. In 1674 Malebranche (*Recherche de la verité*) expressed his belief[2] in the existence of vasomotor nerves ("Nerfs qui environnent les artères pour fermer, par leur contraction, le passage au sang qui montre vers le cerveau, et l'ouvrir par leur relâchement à celui qui se répond dans toutes les autres parties du corps"), but he lived two centuries before men had sufficient knowledge of bodily structure to appreciate all that was involved in this precocious intuition of genius.

Because anatomy had not prepared the way, for instance, the understanding of the injuries that produce aphasia had to wait for three centuries. In the year 1558 Nicholas Massa published an account of a case of traumatic aphasia, which disappeared after operation. The patient received a blow from a halberd that perforated the base of the skull and penetrated the meninges and brain, into which a fragment of bone was driven. He makes the comment, which in the mouth of a surgeon has a very modern and familiar ring about it, that the physicians had not noticed the depressed bone. Massa assumed that the loss of voice might be due to the pressure on the brain of the piece of bone he had detected. Hence, in the presence of the physicians and other onlookers, he proceeded to remove it. To their intense astonishment the patient at once recovered his speech.*

It was not until the beginning of the nineteenth century that, as the result of anatomical observations, Dr. Joseph Gall was able finally to demolish the old theory of animal spirits, which had prevented a proper understanding of the nature of the problem. Then the way was prepared for the admission of the reality of cerebral localization. In a work published in 1818 Gall recorded a case of traumatic aphasia such as Massa had seen in 1558—an officer who received a sword thrust just above the left eye and lost "the memory for words." But it took more than another half-century before physiologists and clinicians were willing to admit the reality of localization, and then only when the genius of Hughlings Jackson and Broca and the experiments of Fritsch and Hitzig, Ferrier, and others had given the observations an anatomical setting by assigning to definite areas of the cortex the control of certain movements. The history of these fifty years is told in full by Dr. Henry Head in his great treatise on *Aphasia and Other Disorders of Speech* (1926).

With reference to the question of cerebral localization, it will be common knowledge that the histological investigations of Dr. Bevan Lewis from 1869 onwards established the fact of anatomical localization. Yet Lewis's important work was brushed aside because the precise results obtained by him seemed to come into conflict with those obtained by experimental investigations.

The difference in structure between the pre- and post-central convolutions of the brain was completely overridden by the fact that Sir David Ferrier and others obtained responses to electrical stimulation from both convolutions. It is important to remember that when Sir Charles Sherrington in 1900, using a more exact method of investigation, was able to prove that the post-central convolution was not excitable, the method of histological localization was restored to favour, and the work which Dr. Bevan Lewis had begun more than thirty years previously was taken up with renewed vigour, and yielded some of the most significant additions to our knowledge of cerebral structure, the full extent of which has been impressed upon us recently by the great treatise by Professors Economo and Koskinas.

The Sympathetic Nervous System.

The new chapter in the history of medicine created by the work of Gaskell, Langley, and Anderson on the sympathetic system was based essentially on anatomical investigations. At the present time the question of the practical and clinical applications of this knowledge is the subject of lively controversy. There are grave differences of opinion in respect of almost every aspect of these problems. But in the long run the issue will be settled by the facts of anatomy. When we know more of the structure of the nerves passing to muscles and their connexions in the central nervous system the decisive evidence for the solution of these difficult problems will have been attained. In respect of this matter the morphological outlook comes into direct conflict with the attitude taken up by many of those who rely solely on experimental evidence. It is generally admitted that muscles have two more or less distinct functions to perform—contraction and maintenance of posture. The brilliant investigations of Sir Charles Sherrington have demonstrated beyond question that posture is automatically regulated by means of proprioceptive reflex arcs. It is also admitted that in invertebrates there are separate and distinct muscles for performing these two functions, even though the movements of the animal are slow and clumsy.

To the morphologist, in whose outlook ideas of evolution loom more largely than they do to the mere experimentalist, it seems in the highest degree improbable that vertebrate animals, in which muscular activity attains a much higher degree of rapidity, skill, and complexity than it does in most invertebrates, should reveal no corresponding differentiation of muscles and nerves for carrying out these two functions. For fifty years it has been known that there is a duality of innervation. We know that there are differences in muscular fibres—the thick and the fine—the relative proportions of which are responsible for the obtrusive differences in colour between red and white muscles. It seems, therefore, if one applies the morphological argument, in the highest degree probable that the greater efficiency of the vertebrate muscle may be due to the fact that the two kinds of muscle fibre, instead of being separate as they are in invertebrates, are intimately blended to form composite muscles.

We know that in the case of the viscera there are two functionally distinct groups of nerve fibres, and it seems again highly improbable that the voluntary muscles, which have automatic functions to perform like those of the involuntary muscles and in addition the highly complex reactions associated with willed movements, should be less well equipped for these more complicated functions than the simpler muscles. It remains for anatomical studies to provide the explanation of the conflicting evidence derived from experiments and surgical operations.

Some Practical Applications.

In spite of the widespread neglect of morbid anatomy, the development of cytology and the recognition of its fundamental importance in the investigation of cancer is bringing an increasing number of pathologists back to morphological studies. An interesting application of such knowledge is now being made in clinical surgery, in which observations in the cytology of cancer (such as were made years ago by Sir G. Lenthal Cheatle) are being used by Dr. McCarty in the Mayo Clinic to determine the prognosis in cases of carcinoma.

Some observations that my colleague Dr. H. H. Woollard has been making on the neuro-muscular lesions of so-called beri-beri induced experimentally by depriving rats of certain vitamins suggest that in the last resort the evidence afforded by the structural changes in muscles and nerves cannot be neglected in any estimate of the effects of food deficiency. This impression is even more emphatically confirmed by the observations on bone growth by another of my colleagues, Dr. H. A. Harris. He has been able to demonstrate by anatomical studies that after any diminution of the growth processes of the body (such as normally occur during the week after birth and in certain phases of puberty, as well as in grave illness, or even deprivation of a diabetic patient of his dose of insulin) an opaque line makes its appearance in *x*-ray photographs of bones. This has been mistaken for and used as a diagnostic sign of healed rickets, and many observers' work has been vitiated by erroneous interpretations of the effects of vitamins, etc., on bone growth. Such results indicate that morphology provides criteria by which the influence of the various

* This case of Marcus Goss is reported in Nic. Massae, *Epistol. medicinal.*, II, 90-91 (Venetiis, 1558); and a similar case in Fr. Arcaeus, *De recta curandorum vulnerum ratione*, 62-27 (Antverpiae, 1574). My attention was called to these surprising records by the reference to them in Jules Soury. *Système nerveux central*, 1899, T. 1.

incisions, or, failing this, a cicatricial stricture may be allowed to form. This will require to be kept dilated by a Gluck's tube.

After-Treatment.

I will consider only one point under this head—that of feeding. This is usually provided for by means of a tube passing either through the mouth or the nose. In either case the tube sets up a varying degree of discomfort and irritation which results in excessive secretion of saliva and perhaps coughing, both of which would be better avoided. This can be done by passing a soft rubber catheter through the wound in the neck into the pharynx in an oblique direction so that the opening in the skin is not opposite to that in the pharynx. Both pharyngeal wall and skin are fixed tightly round the catheter so that it does not tend to slip out and no leakage takes place. Abundant fluid food can be given in this way for as long as is thought desirable without causing the patient any inconvenience, and when the catheter is finally withdrawn, owing to the valvular track, there is no leakage and the opening closes at once. I have adopted this plan for a number of years and have found it a very great advantage.

II.—ROBERT KNOX, M.D.Ed., M.R.C.P.Lond.,
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(*With Special Plate.*)

TREATMENT BY *X* RAYS.

The treatment by *x* rays of disease occurring in these regions has, up to the present, not been very satisfactory—as is also the case with other methods. The site of the lesion makes it very difficult to evolve a satisfactory technique, while the small area involved, and the number of structures in this small area, give rise to difficulty in accurately restricting the beam of rays to the structures under treatment. For cosmetic purposes it is essential that the skin and subjacent tissues should not be damaged, but the chief difficulty is one of dosage; in such a limited available depth of tissue it is not easy to administer anything like a satisfactory dose without running the risk of damage.

Recently, however, in the case of both radium and *x* rays, advances of technique have brought the possibility of administering a satisfactory dose perceptibly nearer. With both agents this advance has been made possible by increasing the power of the apparatus. In the case of radium Regaud has shown that large quantities used in a special way, and heavily filtered, will produce results in malignant disease of these regions which show a great improvement on those formerly obtained. Similarly with *x* rays, higher voltages enable us to apply a greater intensity at the depth, while working at a greater tube distance. Filters on the skin of 2 to 10 cm. of wax aid in the giving of a strong dose in the depth with no risk of skin damage.

Working with *x* rays on somewhat similar lines as Regaud is doing with radium, we have been able to obtain response of a favourable kind in diseases which up to this time baffled us. On the assumption that an erythema dose or more on the skin is the accurate measure of the dose necessary to induce biological response of a favourable kind, and also assuming that to a similar type of growth situated more deeply in the body a dose of like nature will induce the same change, we were led to experiment with radiations of medium wave-length. We increased the anticathode skin distance to 20 inches, or 50 cm., using a filter of 0.1 mm. of lead with a voltage of 135 kilovolts, 4 amperes, primary current, 4 milliamps. in the secondary; on the skin wax to the depth of 2 to 6 cm. was used according to the type of growth and its depth from the surface. A pastille placed at the half-distance under these conditions required a time exposure of 330 minutes, or 5½ hours.

As a result of these experiments we found that a pastille dose can be given with safety, so far as the skin is concerned, in one sitting, but as a rule only fractions of the dose have been given at short intervals. Various voltages can be used under the same conditions, and a dose worked out for each. The shorter or more penetrating ray will take a relatively shorter time for the production of the same effect in the deeper structures. Technique of the same order has been extensively used in enlarged cervical glands secondary to malignant disease of the upper air and alimentary tracts, with beneficial results; the glands have slowly diminished in size, while the primary growth has in a number of cases shown improvement.

Accuracy of Diagnosis.

In the treatment of diseases in these regions an accurate diagnosis is essential. Malignant disease of the upper air passages and alimentary tract is frequently accompanied by secondarily affected glands, and it is often the latter which first call attention to the disease and give rise to distressing symptoms. The distinction has therefore to be made as to whether the glands are primarily affected or are secondary. A careful search for a primary lesion will almost invariably settle the point.

A greater difficulty is to determine the nature of the disease. The chief conditions likely to confuse the diagnosis from malignancy are tuberculosis of the glands, syphilis, and actinomycosis. The differential diagnosis is not always easy. In doubtful cases, when a primary lesion cannot be found, a few *x*-ray treatments may indicate the nature of the disease. The response generally met with in glandular enlargements is striking—the glands diminish most rapidly in simple inflammatory conditions; in lymphadenoma and lymphosarcoma the response is often nearly as rapid; in tuberculosis the reaction is more difficult to obtain, and a much longer time period must elapse before any diminution in size follows, and in carcinomatous glands the response is very slow indeed—not infrequently there is a total failure to respond.

There is no doubt at all that in comparatively recent times the improvements noticed in cases of the type described as carcinomatous have been more marked and of more frequent occurrence; this has been due to the improvements in the technique of radium and *x* rays.

The conservative use of *x* rays in combination with surgical measures is to be commended, and it is urged that in all forms of treatment the earlier the case is treated the more favourable will be the response. In cases where surgical removal is possible, and which are complicated by widespread glandular involvement, pre-operative treatment is advocated; in such cases this will be limited to the glandular enlargements, the primary growth receiving only a fractional dose. In cases where the enlargement of a group of glands is likely to prolong the duration or extend the region of the operation, *x* rays may be employed to bring the condition within the range of a moderate operation. This has been done in a number of cases. After operation, treatment by *x* rays should be continued for a period of time commensurate with the gravity of the condition; the *x*-ray treatment should, however, never be pushed to the extent of depressing the reparative power of the patient; on the contrary, it should be directed to maintaining the natural power of resistance at a high level, or, as often happens, of increasing it when it is below par. By judicious dosage the patient may be tuned up to a considerable degree; this can be proved when repeated blood tests are taken as a check on the treatment.

In inoperable cases, where surgery and other measures are not advisable, *x* rays may be and are extensively employed, often with no hope of curing the patient, but to alleviate symptoms. In this field *x* rays have achieved a certain measure of success. The cases quoted serve to indicate the degree of response sometimes met with, and to show that even in the most desperate cases *x* rays, if used in moderate as distinct from destructive or lethal doses, can give relief, and occasionally much more than relief. Such cases are encouraging also in that they show that there is a definite ground for hope that future advances in technique may yet yield more brilliant results.

The outstanding feature in the improvement of technique has been the recognition of the fact that it is not advisable, and certainly not necessary, to adopt the lethal dose as the unit of effective dosage, but rather to take it as a unit of measurement of a total dose, which can be

Preparation for Operation.

The principal dangers and complications of these operations are the result of infection of the operation wound or of the lungs. These complications are more prone to occur, and are more serious when they do occur, if the mouth is septic owing to the presence of teeth.

The teeth must therefore claim first attention. Should the patient be already edentulous there can be no doubt that the dangers of the operation and the risk of complications are greatly lessened unless there be some other cause of infection present. If, however, the patient is not already edentulous, should he be always made so? In spite of the strong opinions that have been expressed, I do not think that this question should be considered closed, and I hope that there will be further discussion in regard to it. The removal of a number of teeth from an old patient whose health is already affected by the presence of a malignant growth is admittedly a serious matter. Moreover, the time taken for recovery from the extractions, and for getting the gums soundly healed, will probably be three or four weeks. In the circumstances this loss of time, while rendering the operation safer, may also destroy the chance of cure. Is it justifiable in every case? It is my practice to be guided by circumstances. If the patient has a good set of sound clean teeth I do not advise extraction; if he has a number of obviously septic teeth I usually have them removed. If, however, the teeth are in fairly good condition I trust to careful scaling and cleaning up, with perhaps a few extractions, especially if the patient is old and in poor health.

Oral sepsis may also be maintained by infected tonsils. The danger from these is lessened by painting with 1 in 500 chinosol in glycerin for a few days. During the period before operation the mouth and the primary growth should also be rendered as clean as possible by frequent use of mildly antiseptic mouth-washes and sprays; the general condition is improved by means of rest, fresh air, abundant food of suitable character, and careful regulation of the bowels.

The Operation.

The anaesthetic I have used for many years in all major operations upon the nose, mouth, and throat is ether administered by intratracheal insufflation. Of the many advantages of this method two call for special mention. The first is that the perils of chloroform, both during and after the operation, are avoided. The second is the elimination of all risk of pulmonary infection from inspiration, at all stages of the operation. This is of particular importance during the removal of the glands, if this is undertaken prior to the removal of the primary growth, and while the preliminary operation for the exposure of the growth is being performed. During these procedures the patient is lying for a considerable time under deep anaesthesia with a foul ulcer somewhere in the neighbourhood of the upper opening of the larynx. This must involve a serious risk of sowing the seeds of an inspiration pneumonia before the main operation is even begun. This risk can only be eliminated either by preliminary laryngotomy or tracheotomy and plugging the pharynx or trachea, or by intratracheal insufflation of ether; the latter is obviously far simpler and safer. There is one objection to the method and that a small one: haemorrhage is rather more free than when chloroform is given through a laryngotomy or tracheotomy tube, and consequently the operation takes rather longer.

With few exceptions the operation upon the primary growth consists of three distinct procedures—namely, the operation of approach by which the growth is exposed to view, the removal of the growth with a sufficient margin of healthy tissue, and the repair of the wound.

In a small group of cases, where the growth is quite small and superficial and can be comfortably reached through the mouth, either with or without division of the cheek, all that is needed is the removal of the growth, with three-quarters of an inch of healthy tissue round it, either by the knife or by diathermy. In the former case the wound must be closed by a number of mattress sutures of catgut bringing broad surfaces into apposition. In all other cases an operation of approach, carefully planned according to the site of the growth, will be needed.

Without going into the details of these operations some of their main features may be reviewed. It is usually convenient first to clear the corresponding side of the neck of lymphatic glands and vessels. The first incision follows the anterior border of the sterno-mastoid for its whole length; a second passes from the chin to join the first at a right angle. The two skin flaps are then dissected forwards. The deep fascia is divided in front of the sterno-mastoid, as recommended by Mr. Trotter, so that the flap thus formed may later be sutured to the prevertebral fascia in front of the main vessels, which are thus completely shut off from the main wound. The advantages of this step are obvious. All glands are now removed, together with the internal jugular vein if necessary, and the external carotid is tied close to its origin.

The further steps are necessarily dependent upon the site of the growth. If this is oropharyngeal, involving tonsil, fauces, pharynx, or base of the tongue, the mandible must be sawn through in front of the masseter, and the mucous membrane of the mouth and the pharyngeal wall then divided to a sufficient extent and the wound widely retracted, the incisions being so planned as to serve, at any rate in part, for the removal of the growth. If, on the other hand, the growth involves the laryngeal portion of the pharynx the pharyngeal wall will be divided lower down, usually after removal of the great cornu of the hyoid bone and of the greater part of the ala of the thyroid cartilage.

Before opening the pharynx it must be isolated so far as possible from the surrounding tissues by gauze packs in order to minimize the risk of infection of the wound by pharyngeal contents, and after the growth is exposed it also should be further packed off. The next step—removal of the growth—may be effected either by excision or by diathermy. In my opinion the principal advantage of diathermy is that the peripheral coagulation seals off the surrounding tissues. In consequence of this the most serious danger involved in these operations—that of spreading infection—is practically eliminated. The chief disadvantage, on the other hand, appears to me to be the increased danger of pulmonary sepsis resulting from the prolonged local suppuration associated with healing and cicatrization.

So far as I am concerned the question of using excision or diathermy is at the present moment *sub judice*, but, as regards actual practice, if the base of attachment of the growth is small, so that after removal the wound can be securely closed, I prefer excision; if, however, the growth is large and irregular I am inclined to favour diathermy.

At the end of a long operation, and especially if the anaesthetist is not very well pleased with the patient's condition, the last stage of the operation—the closure of the wound—may tend to be rather hurried. It must be remembered, however, that the upshot of the whole operation is dependent in great measure upon the successful closure of the opening into the pharynx, for the infection which results from leakage is always serious and may be fatal. Security against leakage from the pharynx can only be obtained by inserting numerous mattress sutures bringing broad submucous surfaces together, further sutures approximating the muscles and occluding all spaces. Of the superficial wound the part over the sutured pharynx is left widely open and lightly packed, thus making provision for possible leakage. The rest of the wound is sutured, a drain being left in the lower angle.

The removal of the more extensive growths may result in a defect which cannot be completely closed at the time, but will require a plastic operation later. In these cases the mucous membrane should be sutured to the skin edges. This will help to prevent spreading infection and subsequent cicatrization, and will, moreover, greatly simplify subsequent plastic measures.

The removal of a hypopharyngeal growth, either alone or combined with total laryngectomy, will also result in a defect which cannot be closed by direct suture of the pharyngeal wall, but must either be made good by a skin flap, which will need to be provided for by the original

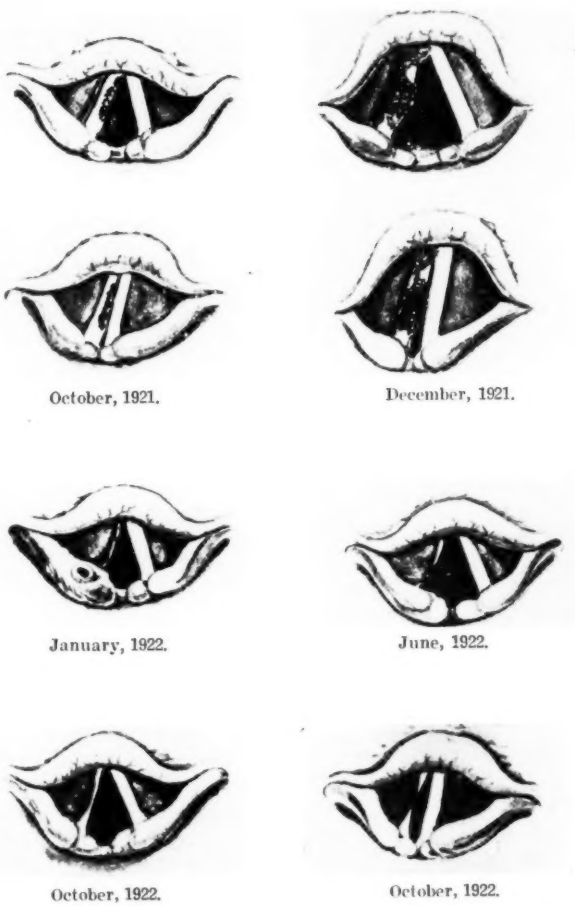

FIG. 1.—New growth of larynx, showing progress and effect of treatment. (Photographed from coloured drawings kindly lent by Sir StClair Thomson.)

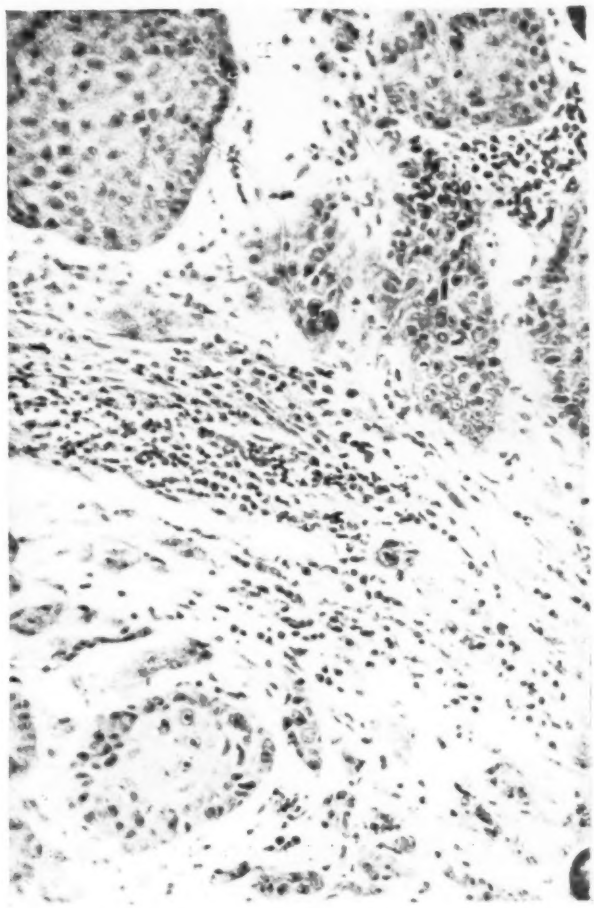

FIG. 2.—High power magnification of section of new growth of the larynx.

FIG. 3.—Sarcoma of tonsil, showing result of radiation treatment.

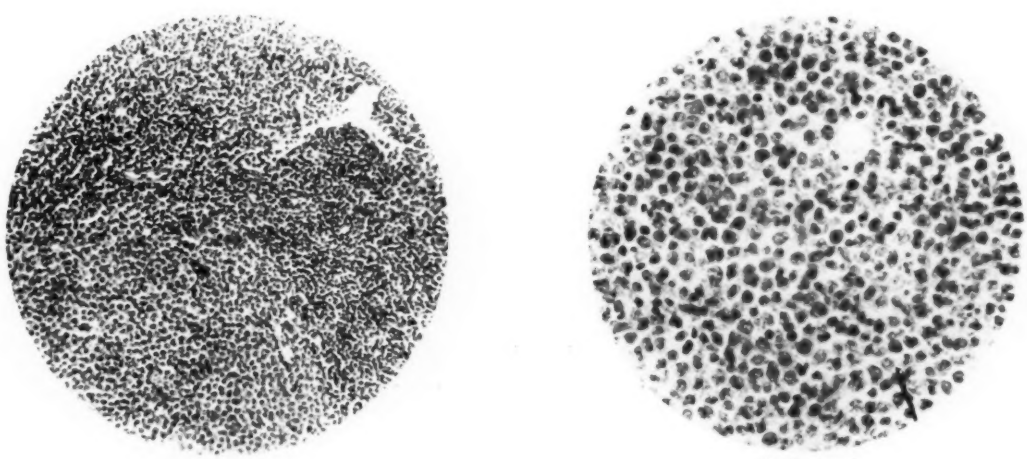

FIG. 4.—Sarcoma of tonsil with secondary glands in neck and thorax. Low and high power magnification from section of gland removed from neck.

spread over several days, weeks, or months, according to the urgency of the symptoms. This has been proved both with *x* rays and with radium.

Cases to Illustrate the Differential Diagnosis and Effect of Treatment.

Case I.

A patient was sent for treatment of an enlarged tonsil with greatly enlarged glands in the cervical region posterior to the angle of the lower jaw. When seen in the first instance the skin over the glands was involved, and the condition was diagnosed as epithelioma of that region. The tonsil on the left side was enlarged and reddened. The patient had previously been treated with a mercurial and iodide mixture with no material improvement. Energetic *x*-ray treatment to the glands resulted in a considerable degree of ulceration and breaking down of the glandular mass. Haemorrhage supervened and the patient was admitted to hospital in a serious condition.

The ulceration had extended down to the bone in the cervical region, and in spite of treatment by various forms of radiation continued to spread. The haemorrhage ceased, and accidentally it was found that he had had a mercurial mixture for a few days while in the ward, after which slight improvement was noticed. A Wassermann reaction gave a strongly positive effect. Thereafter he was put on a thorough antispecific treatment, and mild radiations applied, chiefly ultra-violet rays supplemented with occasional small doses of *x* rays. The condition completely healed and for a considerable time the patient remained well. When seen last, about a year ago, he was perfectly well.

Case II.—*Actinomycosis.*

The following notes of a case of this class are interesting.

A man, aged about 50, was sent for treatment with a history of an operation to the lower jaw and subsequent development of a glandular mass in the submaxillary triangle. A piece of the growth removed was reported as being inflammatory in character.

When seen at the Cancer Hospital in June, 1925, there was a glandular mass behind and below the angle of the lower jaw, the surface was irregular, and in places presented a pustular appearance, though no pus could be found exuding from these spots. The patient was told to foment the mass and to present himself when pus was found to exude. The report (pathological) pointed to a diagnosis of actinomycosis. Two doses of *x* rays led to a rapid improvement in the appearance of, and a diminution in, the size of the tumour. The lower jaw when *x*-rayed showed the appearance suggestive of actinomycosis of the bone; the glandular mass was secondary to this lesion. The patient was put upon potassium iodide, etc. The glandular mass is slowly subsiding under combined treatment.

Case III.—*Sarcoma of the Right Tonsil.*

This case of sarcoma of the right tonsil with secondary glands in the cervical region and mediastinum was treated on similar lines to the technique described, and gave a satisfactory response for a time. In addition to *x* rays, radium was applied to the enlarged tonsil on two occasions. The glandular condition cleared up and the tonsillar enlargement practically disappeared. (Figs. 3 and 4.) The patient developed mental symptoms, and while being treated for this condition the radiation treatment had to be suspended. He died some time later, presumably from an exacerbation of the original condition.

Case IV.

A man, aged 48, attended the hospital for the treatment of a malignant condition of the nasopharynx, and secondarily enlarged glands at the angle of the lower jaw on the right side. Previously to coming to hospital he had attended at Charing Cross Hospital, and was operated upon there for disease of the antrum. Mr. Davis, who performed the operation, stated that he found a growth in the nasopharynx, but it could not be removed. No section of the growth was made.

The patient was treated with *x* rays in the following way: To the glandular enlargement doses were given at frequent intervals. The beam of rays was directed in each instance towards the nasopharynx, in the hope that the growth there would get a percentage of the dose. The voltage was 135,000. A filter of 0.1 mm. of lead was used, and 2 cm. of wax placed on the skin. Sixty minutes' exposure to this radiation was given; the total pastille dose for these conditions would be 5½ hours. The first dose was given on March 11th, 1926. On the following dates, March 17th, 24th, 31st, and April 7th, doses of thirty minutes each were given.

The nasopharynx was blocked with polypi, of which Sir James Dundas-Grant removed portions. The glands diminished in size after three exposures. The type of radiation was now changed. On April 14th he was given one-third of an hour's exposure to radiations of 160 kilovolts filtered through 1/2 mm. of copper, 2 mm. of aluminium, and 1 mm. of celluloid, with 4 cm. of wax, directed through the same area as before. This dose was repeated on several occasions.

The patient was sent to Mr. Davis, who reported that the trouble in the nasopharynx was practically gone, and commented on the fact that the rays had done a great deal for the patient. Sir James Dundas-Grant also reported on the condition about the same time as follows: "Less polypoid excrescences in right nostril anteriorly; by posterior rhinoscopy there is nothing beyond a little thickening round the right Eustachian tube, serous exudation from the right tympanum; hearing improved by inflation."

The treatment was continued, and on May 28th the following note was made: "Enlarged glands much smaller, can hardly be felt now." A blood count taken at this time showed practically no change from one taken at the commencement of the treatment. A Wassermann reaction gave a negative result.

At the present date, June 24th, the glandular condition has disappeared, the patient is in good health, and, so far as can be seen, the nasopharyngeal mass has gone.

This case illustrates what can be achieved with *x* rays alone in disease of the nasopharynx.

Case V.—*New Growth of the Larynx.*

In this case (a patient sent for treatment by Sir StClair Thomson) the diagnosis was open to suspicion, though to a number of specialists who saw the case there was clinically no doubt, and a section removed from the larynx by Sir James Dundas-Grant was shown to be undoubtedly epithelioma. The history and records of treatment are given elsewhere, but for our purpose it will suffice to indicate the general method employed. Voltage about 120,000, filter 8 mm. aluminium and wax on the skin. Weekly doses were given to either side of the larynx and glandular area in the neck. These were continued for a period of several months. The patient made a complete recovery, and remained free from the disease until his death about two and a half years after the commencement of treatment.

An interesting point is that, in spite of the prolonged treatment, no reaction of the skin over the parts irradiated occurred. The enlarged glands in the neck completely disappeared. The progress of the local condition in the larynx from the commencement of the clinical observations to the period of complete healing is shown on the drawings kindly lent to me by Sir StClair Thomson. (Figs. 1 and 2.)

III.—Sir WILLIAM MILLIGAN, M.D.,

Consulting Aurist and Laryngologist to the Royal Infirmary, Manchester; Surgeon Laryngologist to the Manchester Radium Institution.

Treatment by Radium.

In discussing the treatment of malignant disease of the upper air and food passages by means of radium I labour under the disadvantage of having to confine my remarks almost exclusively to the treatment of surgically inoperable growths—a by no means insignificant proportion, however, of the cases which to-day are brought under our notice.

So far as the treatment of malignant disease in general is concerned—and our own specialty is no exception to the rule—few surgeons have had the courage to employ radium where the growth to be removed appeared to be removable by ordinary surgical procedures, a course of action which at the moment is in consonance with recognized surgical opinion. I venture, however, to say that I look forward to the time when, with improved technique and a more accurate knowledge of dosage and duration of exposure, radium will be used in the type of case which to-day the surgeon claims as his very own. For this reason my remarks must in the main be confined to that vast and distressing array of inoperable cases—vast because I think that no one who has carefully studied the subject will deny that cancer is on the increase, and distressing because, were the public educated as to the danger signals of early malignant disease, much suffering would be avoided and many lives saved.

Since the isolation of radium salts in a pure condition in 1903, and its isolation as a metal by Madame Curie in 1911, its employment as a therapeutic agent has been persistently advocated, more especially in the treatment of malignant growths, its beta and gamma radiations having the property of destroying the malignant, while sparing the healthy, cell. In addition, much clinical work has been done, and various changes in the method of its application, and the amount and duration of dose have been effected as the outcome of increasing experience. In the treatment of inoperable carcinomata two schools of thought dominate the situation: (1) those who believe in large doses and short exposures; (2) those who believe in small doses and long exposures.

Having carefully noted in a numerous and varied series of cancer cases the relative merits of both methods, I am myself in favour, in the majority at any rate, of treatment by small doses and long exposures—exposures running at times to ten, fourteen, or even twenty-one days. For such long exposures it is obvious that the element, and not the emanation, must be used, and this has the disadvantage of locking up large quantities of radium for somewhat prolonged periods, so that its employment is only possible when a moderately large supply of the metal is available. The advantage of accurately burying tubes, needles, or seeds, screened or unscreened, in the tissues is so obvious

as to require no emphasis, and points to the advisability, whenever possible, of exposing the growth, more especially its base, and under the guidance of the eye inserting tubes, needles, or seeds in an exact and well-thought-out series.

Sarcomata, more especially the rapidly growing variety, are, however, extremely susceptible to small doses of radium applied even for so short a time as twenty-four hours. Their disappearance is at times almost miraculous, but, unfortunately, owing to the seeds of metastasis having already been sown, recurrence at a distance from the primary growth is by no means unknown. In endotheliomata short exposures of from twenty-four to forty-eight hours are often quite sufficient.

In certain situations, such as the nasopharynx or the oesophagus, considerable technical difficulties, due to inaccessibility, confront the operator. In the former an approach to the growth may be made by the lateral nasal route and tubes inserted alone or in combination with other surgical procedures. Another path of approach is by way of the nasal passages with the aid of a special introducer; while yet a third is the introduction of tubes under the guidance of posterior rhinoscopy.

As a means of dealing with malignant growths in the nasopharynx radium offers many advantages. In the first place, from the point of view of prophylaxis it is useful for its devascularizing effects previous to surgical intervention; in the second place, the uncertainty of effecting complete removal by surgical measures, combined with the risk of serious haemorrhage and the possible occurrence of severe septic otitis media, renders its employment, apart from occasional perforation of the palate or necrosis of the bony walls of the posterior choanae, practically free from risk. The more fibrous the growth, the larger the dose required and the longer the time taken for its disappearance. Growths such as sarcomata, more especially the round-cell variety, conforming as they do to embryonic tissue, are readily dispersed, even with short exposures, by suitable doses of either element or emanation. I have, however, been disappointed at times by the subsequent appearance of serious blood changes after its employment. These blood changes are probably of metabolic origin and not the direct result of radio-activity on the haematopoietic organs or cellular elements of the blood.

In that type of sarcoma, round-celled or lympho-sarcomatous, probably arising from glands, and characterized clinically by the appearance of smooth globular swellings in the neck, a fatal issue may result as the outcome of a toxaemia produced by the rapid absorption of the autolytic products of the tumour. In such cases a very gradual absorption of the growth should be aimed at. In the treatment of peritubal malignant growths—growths which as a rule rapidly infiltrate the lateral wall of the nasopharynx—the insertion of radium appears to me to be the most reasonable and hopeful line of treatment to adopt. When the growth is pedunculated, which it rarely is, except in the histologically non-malignant, although clinically malignant, fibromata, surgical removal is indicated; when, on the other hand, it is sessile and infiltrating, surgical intervention is hopeless, while radium has at least a sporting chance.

Whether enlarged glands are present or not, the lymphatic network leading to the first line of defence should be thoroughly saturated with its gamma radiations. If present, and if operable, it is a moot point whether glands should or should not be removed prior to the operation upon the primary growth. After all, they are Nature's first line of defence, and even when infected serve a useful purpose for a time. The immediate effect of the introduction of radium into any growth is to cause considerable reaction in the tissues, increased vascularity and a general oedema, with the probability that malignant cells may commence wandering from their original habitat, to be locked up, however, for a time at least, in the nearest glandular barrier. For this reason I am not now disposed to remove glands in the first instance, as was formerly my practice, but to wait until the period of the first reaction has ended and then to operate. Whenever possible the surgical extirpation of glands should be undertaken. The burial of screened tubes in their substance is scientifically unsound, although it may possibly succeed at times. The general practice has been to bury tubes in the obviously enlarged nodes, but, as is well known, many small glands exist in the connective and fatty tissues of the involved area, and also at times in adjacent muscular bundles—glands which contain microscopic deposits of cancer cells and which remain entirely uninfluenced. Following the surgical removal of the infected lymph nodes, radium tubes may with great advantage be buried in the lymphatic field for periods varying with the histological structure of the primary growth. External irradiation is also of value, but has to be governed by the tolerance of the skin. It may be effected by placing a collar or frame, to which are attached the necessary number of radium tubes, over the affected area. In addition, the main artery leading to the growth should be tied in order to devascularize the tumour.

Malignant growths in the nose are not very common. Primary carcinoma is somewhat rare, although it so happens that I have myself seen a somewhat exceptional number of these cases. Sarcoma, especially the round-cell variety, is much more common. The varying virulence of nasal sarcomata is known to, and appreciated by, all rhinologists, although I am unaware of any satisfactory explanation of the reason why. The higher up the origin of the growth is in the nasal passages, the worse the prognosis. Although small, favourably situated, and early malignant growths may be treated by one or other form of intranasal operation, access from without—as, for instance, by a lateral rhinotomy—is as a rule preferable, and affords a much better opportunity of radical destruction.

In the treatment of malignant growths of the maxillary antrum and ethmoidal labyrinth—growths usually of the columnar-cell variety—exposure of the tumour should be obtained in the former by a window resection through the canine fossa to facilitate approach and to lessen the risks of extensive necrosis, in the latter by the performance of a lateral rhinotomy. The lines of treatment are the same for growths in either situation and consist in: (1) ligature of the external carotid artery; (2) removal of infected glands; (3) opening of the maxillary sinus or ethmoidal labyrinth; (4) curetting of growth; (5) application of radium; (6) surface radiation. The fact that necrosis may result should not diminish the surgeon's zeal even in the event of deformity resulting—deformity which it is possible to rectify by one or other form of plastic operation, the aim and object of treatment being to get rid of the disease. Sequestra may take months and even years to exfoliate.

Glandular involvement following malignant disease of the accessory sinuses is a late phenomenon. When it occurs the nodes involved are the submastoid and the carotid, and treatment should follow on the lines already laid down.

Malignant disease of the palate is fairly frequently met with. From the surgical point of view it is more often than not inoperable, but lends itself admirably to treatment by diathermy, so much so that I venture to think treatment by radium is rarely called for. In the diagnosis, however, of suspected malignant disease, more especially of the soft palate, I venture to emphasize the necessity of excluding chronic tuberculosis and tertiary syphilis, diseases which at times simulate epithelioma. In this situation glandular involvement is also a late phenomenon.

Primary malignant disease of the tonsil is, in my experience, uncommon, but malignant disease attacking the tonsil as the result of extension from the tongue, the palate, or the faucial pillars, is far from rare and presents one of the most difficult therapeutic problems the surgeon has to deal with. Ordinary surgical intervention is admittedly seldom successful, and is, moreover, very mutilating. The growth is almost invariably a squamous-cell epithelioma highly radio-resistant and particularly difficult to destroy.

In what might be termed favourable cases—that is, where the growth is limited in size and not fixed—the introduction of tubes or seeds may be effected *per os*, after the extraction of all septic teeth. At least six tubes should be introduced—three from behind forwards and three from before backwards—in parallel series and 1 centimetre apart,

H. WARREN CROWE: OSTEO-ARTHRITIS OF THE HIP-JOINT TREATED BY VACCINES.

FIG. 1.—Skiagram of left hip-joint of Case 1 before treatment.

FIG. 2.—Case 1 two years later, after treatment.

FIG. 3.—Right hip-joint of Case 2 before treatment.

FIG. 4.—Case 2 twelve months later, after treatment.

is the great factor. In its early stages the disease is purely local, and, if treated at once, curable. So far I have only had the courage to treat two early and quite operable malignant cases with radium and with radium alone, and in both with excellent results. The assertion that many of the failures with radium in our own particular department of work are due to faulty technique, inadequate exposure of the growth, and inadequate experience, is merely a truism. The haphazard introduction of tubes is not only useless, but is actually provocative of harm.

The radiologist—by which term I mean the radium expert—works to-day under great disadvantages. To his care are relegated as a rule the inoperable and surgically hopeless cases of malignant disease. His chances of brilliant results are few and far between, but that he does get successes and encouragement in his work, even in the desperate cases he deals with, becomes obvious on reading the reports of either the London or the Manchester Radium Institute. In passing I would just mention that a considerable number of the cases he is asked to treat are not even suitable for radium treatment, the extent of the growth and the condition of the patient being such that his experienced and critical judgement negative intervention of any sort.

The conclusions, so far as the treatment of malignant disease of the upper air and food passages by means of radium is concerned, which I venture to place before you for discussion are:

1. That in the present state of our knowledge surgical removal of a malignant growth should be undertaken if a practical proposition.
2. That the lymphatic nodes into which the lymph stream from the growth drains should be removed by dissection or by block dissection.
3. That the lymphatic vessels between the growth and the infected nodes should be irradiated either from within or by external irradiation, and preferably by the former method.
4. That the growth to be irradiated should, wherever possible, be exposed so as to admit of its being handled.
5. That the introduction into the growth of a large number of seeds containing small doses of emanation to be retained *in situ* gives even better results than the implantation of screened tubes.
6. That the implantation of the seeds should follow a definite mathematical plan.
7. That as the periphery of the growth is reached the emanation dose may be reduced.
8. That the main artery to the growth should invariably be ligatured.

IV.—W. S. SYME, M.D.EDIN., F.R.F.P.S.GLAS.,
Lecturer in Diseases of Throat and Nose, Glasgow University; Surgeon, Glasgow Ear, Nose, and Throat Hospital.

TREATMENT BY DIATHERMY.

FOR more than seven years I have used diathermy in the treatment of malignant disease of the mouth and throat—at first timidly and only as a palliative measure in inoperable cases; later, and gradually, operable cases in all stages have been dealt with.

I need not enter into the physics of the method or describe the apparatus in detail, but only deal with the terminals, of which there are two—one consists of a flat leaden plate; the other, like *hors d'oeuvres*, is "various." The former is the static terminal in that it remains where it is placed; the other is dynamic in that it is the terminal with which the operation is conducted. For this latter terminal there are different points—knife, needle, and round and flat buttons of various shapes and sizes. The heat generated at the point of this terminal varies in inverse proportion to its size as compared with the other flat terminal. The leaden plate is wrapped in several layers of lint wrung out of warm saline solution, and is applied to the skin of the patient in the region of the buttock, the patient lying on it; or, better still, I think, one surface of it is smeared with soap and wound round the arm, being kept firmly applied by a bandage. The aim of surgical diathermy is coagulation by heat and not cauterization. When properly used coagulation is obtained for a radius of a quarter of an inch or more from the acting terminal. Too strong a voltage will result in cauterization, too weak will consume much time in raising the tissues to a sufficient degree of heat.

There are two methods of dealing with the growth. The aim may be to remove it, or it may be to coagulate it, in part or in whole, and allow the coagulated portion to slough away. In all cases in which it has seemed to me that the growth might be removed I have done so, and in this way. With the current off, the diathermy knife is plunged into the tissues beyond the growth, and the current is turned on. At first it takes a little time for the tissues to become heated to a point where coagulation occurs; this is seen by blanching of the tissues around the point and by boiling of the serum or secretion. The current is then switched off and the knife introduced at a little distance from the first place. If the point is withdrawn and introduced with the current flowing cauterization of the surface is apt to occur. This cannot always be avoided, but as far as possible it should be prevented. In this way the whole growth is encircled, and deeply, without regard to structures. Hard bone like the lower jaw will not be destroyed at once, but the part exposed to the heat will come away later as a sequestrum. After coagulation has been produced all round the growth it may be left to slough away, but my practice has been to use the diathermy knife as a knife, and remove it. Where for any reason—and chiefly because it seemed to me that the growth could not be removed—I have adopted the other method, I have dealt with the tumour by means of a blunt point which is applied to the growth in various places, in part or whole extent, according to circumstances.

Though the coagulation will seal up small blood vessels, it cannot be expected to do so with those of large size, and where these are likely to be encountered I always tie the main artery to the part—for instance, the lingual or the external carotid, as a rule the latter. Sometimes it is necessary to tie both linguals or both external carotids. This, too, is a safeguard against secondary haemorrhage. Sometimes a preliminary tracheotomy is performed. As far as possible the mouth should be put into a healthy condition and diseased teeth should be removed. In short, we must not neglect ordinary surgical principles because we are making diathermy the handmaid of surgery. Chloroform is the anaesthetic; obviously ether is contra-indicated.

The treatment of affected glands requires consideration; some surgeons remove these first and then attack the primary growth either at the same time or subsequently, according to the extent of the disease and the length of time required. After removal of glands the diathermy button may be used over the cavity left to seal up the lymph channels as far as possible, though obviously, in the presence of the large blood vessels, this can be only partially accomplished. In the presence of small masses of glandular invasion my practice is to remove the glands at the time I ligature the artery, if I do so. Where the glandular involvement is greater, or where it appears doubtful whether the glands can be removed, I deal with the primary disease first. As a general rule this leads to reduction in the size of the glands, no doubt owing to the removal of sepsis, and their subsequent extirpation is facilitated. In two cases a process of repair seemed to have taken place in the glands, which aroused interest in the pathologists I have, however, in one or two instances found the glandular disease extend rapidly after the treatment of the growth in the mouth. Every case must, in my opinion, be considered on its own merits. Where no obvious glands are present I do not open into the neck, unless to ligature the carotid, when naturally a further search is made. When the mass in the neck is obviously inoperable, and it is decided either to remove the primary growth or to treat it in a palliative manner by the button, puncture of the glandular mass in different places with the diathermy knife or needle may be performed, and I have seen this mass regress decidedly as a result. Naturally the greatest care must be observed as it is impossible to tell in these cases where the large vessels are.

In dealing with malignant disease of the lower pharynx I have in several instances exposed the tumour by the more

the silk thread from one introduced from behind forwards being tied to the silk thread of the nearest parallel one introduced from before backwards, so that when tied the tubes are kept, not only in position, but also in parallel planes. The manipulation is, however, unquestionably difficult and requires considerable practice. A more successful plan is the burying of a large number of seeds—ten to twenty or even more—in the substance of the growth. These seeds, usually from 3 to 6 mm. in length and from 1 to 2 mm. in thickness, and containing a dose of from 0.5 to 1 m.c. of emanation (=0.5 to 1 mg. of radium element), are implanted in parallel series 1 cm. apart through the substance of the growth, and either become encapsuled or slough out, the idea aimed at being to effect a wide fibrosis without inducing necrosis or sepsis. One millicurie of radon or emanation emits 132 hours of radio-activity before becoming quite inert.

When the growth is large, infiltrating, and adherent to surrounding structures, it should be exposed from without by means of a subperiosteal resection of the angle of the jaw, a piece of bone at least one inch square being removed. The necessary number of tubes or needles should then be inserted, while later on the whole affected area should be irradiated from the surface by the application of a specially constructed mask carrying radium tubes. Preliminary to resecting the angle of the jaw a ligature should be applied to the external carotid artery, infected glands being dealt with at the time or subsequently at the discretion of the surgeon

In dealing with malignant growths of the larynx the ordinary classification of intrinsic and extrinsic growths should be borne in mind.

Extrinsic growths—such as growths in the sinus pyriformis, the arytenoid region, and the epiglottis—may be successfully approached *per vias naturales* with the aid of Haslinger's directoscope. In cases, however, where the growth has extended laterally, it may be advisable, in order to effect an exact introduction of tubes or seeds, to expose the wall of the deep laryngo-pharynx from the outside.

In intrinsic carcinoma where from one or other reason surgical removal is contraindicated, an approach may be secured either through the directoscope or by a window resection of the wing of the thyroid cartilage, or by a laryngo-fissure, the site and extent of the growth determining the exact method of procedure, the thyroid artery having previously been ligatured. My experience is that the implantation of a generous number of seeds into the growth is likely to produce the best results. A number of inoperable cases treated in this way have been free from symptoms for periods of from one to two years.

The performance of a preliminary tracheotomy may or may not be necessary. Speaking generally, it is a convenience and a safeguard, as considerable reaction may follow the insertion of unscreened tubes. As a rule I have found it advisable to perform a tracheotomy when the growth extends below the level of the vocal cords; if above that level it may be dispensed with. A low tracheotomy is advisable and a vulcanite cannula should be inserted. If a tracheotomy is to be performed it should be postponed, if possible, until all manipulations connected with the insertion of radium seeds have been completed. Later on external radiation should be employed with a casted radium applicator round the neck.

The frequency of carcinoma of the hypopharynx, especially in females, is well known and appreciated by laryngologists. Therapeutically it proves a most intractable disease. I have never yet seen a single case in which the insertion of radium tubes or needles has had more than a merely temporary effect.

Malignant disease of the oesophagus presents one of the saddest, the most difficult, and the most disheartening problems the surgeon radiologist has to deal with, and largely because the cases are seen too late. The fetish of what are called nervous symptoms, and the fetish of the bougie, that dangerous and altogether inconclusive instrument, still hold the imagination of large numbers of the profession. By the time obstruction to the passage of the bougie is diagnosed the disease is far advanced. As a matter of actual fact, many cases of malignant disease of the oesophagus never suffer from obstructive symptoms at any stage of the disease. Squamous-celled epithelioma, the type most usually found in the upper two-thirds of the oesophagus, and adenocarcinoma in its lower third, frequently remain for long local and slowly growing pathological entities, unaccompanied by pain but by the presence of vague symptoms referable to the physiological mechanism of deglutition and by a gradual loss of weight. It is just these vague nervous symptoms which may be the signals of impending disaster and which call for the one and only means of accurate diagnosis—namely, a Roentgen-ray or endoscopic examination. Until the profession grasps this elementary fact there is little prospect of the mortality rate falling below 100 per cent.

The relative inaccessibility of oesophageal carcinoma, whether at the carinal, the hiatal, or the cardiac end of the tube, the absence of a serous coat, and the consequent want of mural rigidity, make effective treatment very difficult. To my mind, any and every form of treatment is enormously helped by the performance of a gastrostomy. To wait until the patient is actually suffering from water hunger and then to perform a gastrostomy is the height of folly. Whatever treatment is adopted—radium, diathermy, or deep *x*-ray therapy—it will be much helped by the provision of physiological rest to the affected part. As the growth is frequently annular and has infiltrated the submucous tissues, a screened tube attached to a flexible copper wire may be passed down through the stricture and retained in position for the requisite number of millicurie hours. In long strictures "tandem tubes" or hour-glass tubes may be introduced. The accurate introduction of these tubes—and they are of very little value unless accurately introduced—is much facilitated by first of all giving a light bismuth meal and then working with the aid of the fluorescent screen; or an endless thread to which several radium tubes are attached may be swallowed, more especially if the limits of the growth have been ascertained by the method of couléo reversée—in other words, allowing the swallowed bismuth meal to run backwards while the patient is in a reclining position.

In several cases I have introduced radium seeds through a long introducer, but the method is not free from danger, as it is impossible to gauge the thickness of the oesophageal wall, and perforation is not unknown. The therapeutic value of intramural radiation, however, greatly exceeds any extramural method.

Exposure of the cervical oesophagus is quite a practicable procedure if necessary, but exposure of the thoracic oesophagus by a thoracotomy in order to attempt the removal of a growth or to introduce tubes into its substance is a most formidable surgical undertaking, as many here present realized when they had the privilege of watching Mr. Steward at work at Guy's Hospital.

The type of case at present in which radium treatment is generally employed is as a rule so serious and so desperate that results are in consequence far from brilliant. The patient, emaciated, cachectic, and toxic, rejected by the surgeon, but not by the radiologist, grasps at his one and only remaining chance—a chance which too often, unfortunately, is purely transient.

When the profession recognizes the fact that an exact, and not an inferential, diagnosis of oesophageal lesions is imperative if any progress in treatment is to be made—and that such a diagnosis can be made, and can only be made accurately, as the result of an endoscopic examination of the lumen of the tube—then and then only will cases be discovered sufficiently early to admit of the possibility of cure. Endo-oesophageal malignancy starts as a purely local process, is insidious in its onset, and slow in its progress, but it is capable of being accurately diagnosed, both clinically and histologically, by means of modern endoscopic technique.

It is my profound conviction that in the near future the treatment of malignant disease by radio-active substances will take a more and more important position in therapeutics, and that the time will come when radium will be employed in early and operable malignant disease in place of many of the more or less mutilating and unsatisfactory operations performed to-day.

In the successful treatment of malignant disease time

approximately 25 mg. of radium element to each centimetre in length. This apparatus so charged could safely be retained in the stricture for fifteen hours, more or less, according to the thickness of the growth. The silver style kept the radon cylinder down in the right place on the stricture, and the special collar in Dr. Hill's apparatus prevented it being pressed down beyond the thick hardened upper collar-like end of the stricture. The question of dosage was discussed as regards the weight dose per centimetre length, the screen dose, the time dose, and the repetition dose. Dr. Hill had made over 400 applications of radium salts or of radon in cancerous stricture in the throat and gullet, and had found that about a third of approximately one hundred patients so treated had exhibited very remarkable temporary improvement, one-third substantial improvement, and yet another third were either not obviously benefited or else were rather worse, either from the incidental manipulative interference or from a massive toxic effect very exceptionally induced by radium. Dr. Hill also showed twenty-four slides relating to twelve selected cases, radiographically demonstrating the difference in the size of the lumen of the strictured gullet before and after radium or radon applications. The lives of a certain number of patients had been prolonged with comfort for periods varying from one and a half to three years. In one exceptional case (the radiograms of which were also shown on the screen) the patient had ten applications with Dr. Finzi's radium in the course of two years, and lived normally a further five years (seven in all) with apparent temporary local cure of the primary gullet lesion up to the time of death, which was due to sudden activity in long quiescent small secondary deposits in the liver and abdominal glands. Palliative success depended on exact knowledge and experience of the technique of radium therapy in cancer of the gullet as in parallel measures elsewhere. Loose work by inexperienced persons had brought discredit on this form of therapy in the past and would do so in the future.

Professor VON NEUMANN (Vienna) stated that he injected intravenously 30 c.cm. of a 30 per cent. solution of dextrose before operating.

Sir JAMES DUNDAS-GRANT (London) said that the necessity for exact diagnosis emphasized by Dr. Knox was illustrated by the case of cure of intrinsic epithelioma. It was originally diagnosed as tuberculosis, and the speaker's removal of a portion for microscopical examination indicated the nature of the disease only just in time to save the patient's life. He strongly recommended the early adoption of this method of diagnosis. He stated that simple polypi frequently occurred in the course of malignant disease of the ethmoidal cells, and that the report as to their simplicity should not mislead the examiner. In diathermy the bipolar method was useful. More delicate non-conducting retractors were to be desired. It had to be remembered that ligature of the external carotid artery was occasionally followed by cerebral embolism. In comparing laryngo-fissure with laryngectomy, the speaker called attention to the danger if the patient fell subsequently into water. Laryngo-fissure should always be given the preference, as was usual with British operators.

Mr. E. B. WAGGETT (London) believed that when the jugular vein had to be ligatured it should be resected; in a very promising case in which he had failed to do this the patient died with pulmonary embolism. Post-operative feeding of such cases by a tube inserted through the pharyngeal wound might result in parotitis. It was desirable to give the patient chewing gum to obviate stagnation of secretion in the salivary ducts. Extensive dentistry upon septic sockets might be followed by Vincent's ulceration of the tonsil. It was therefore advisable not to fix a date for the major operation until some days had passed after the dentistry.

Mr. ANDREW WYLLIE (London) had found that patients suffering from malignant disease of the throat or oesophagus were usually of a placid nature, and he did not use a general anaesthetic in diathermy. A dose of morphine was given before the operation; both electrodes were put into the growth, and the patients could sit up immediately after leaving the theatre. He considered that by this method there was less danger of unfortunate sequelae, such as secondary haemorrhage, and had never known of evil after-effects. Very few patients suffering from malignant disease in this situation had sound teeth. He advised every tooth to be extracted two weeks before operation.

Mr. C. A. S. RIDOUT (Portsmouth) emphasized the importance of treatment of oral sepsis before operation for malignant growths of the mouth and pharynx. He thought diathermy was the operation of election for malignant growths of the tongue, fauces, and palate, and emphasis was laid on the value of, and lack of risk in, previously tying the external carotid artery. His experience of treating certain growths of the hypopharynx by diathermy, especially in the neighbourhood of the pyriform fossa, by endoscopic methods was not unsatisfactory. Early gastrostomy was useful in cases of malignant ulceration of the oesophagus, and the consequent improvement in the condition of the ulcer was an aid to further treatment.

Mr. HERBERT TILLEY (London) said that his experience in malignant disease of the nose and its accessory cavities had led him to believe that it was better practice to remove the primary disease as far as possible by surgical measures and then to employ radium or *x* rays afterwards. If radiotherapy was instituted in the first instance, there was the danger that the patient's system might be flooded by the toxins of broken-down growth and inflammatory products. This was by no means improbable in a large closed cavity like the maxillary antrum. Diathermy was an invaluable agent in malignant disease of the readily accessible regions of the mouth and throat, and he had been struck by absence of inflammatory reaction in the normal tissues immediately surrounding the large sloughs on those areas which had previously been occupied by a new growth. Coincident with this was the almost complete absence of shock or other systemic reaction.

Mr. NORMAN PATTERSON (London) considered that a preliminary gastrostomy was a great advantage in that the general condition of the patient was improved thereby and that post-operative feeding was more comfortable and effective.

Dr. W. JOBSON HORNE (London) thought that the importance of accuracy in diagnosis before the commencement of treatment could not be overstated. Of all diseases malignant disease was the one that was diagnosed more often than it existed. He mentioned the frequency of erroneous diagnosis of a chronic inflammatory or granulomatous condition in the nose or a tonsil as sarcoma. The result was an increase in the number of cases of malignant disease of the upper air and food passages, and a corresponding increase in the number reported as being cured of cancer. Going back to before the days of *x* rays, radium, and diathermy, there might be some present who remembered the prominence given in the press to the "violet leaves cure of cancer." The patient, a lady, had been troubled with a throat affection; finally a diagnosis was made of inoperable malignant disease of the tonsil. The patient had resigned herself to her fate when a sympathetic friend suggested treatment with violet leaves, which, in view of the verdict that had been passed, could do no harm. Violet leaves in form of poultices, or compresses, or gargle, or tea, were used, and recovery followed —*post hoc* and not *propter hoc*. This "cure" was taken up by the press. The pathological sections were examined microscopically, and a chronic inflammatory or granulomatous condition was then diagnosed. In the present day of treatment by diathermy an erroneous diagnosis would probably escape notice.

Mr. L. COLLEDGE (London) said that if septic teeth were present with an obviously foul mouth, and the patient declined to have them extracted, it was better to refuse to operate as the patient would die. If the patient had sound teeth the conditions were better, but primary healing was unlikely. The case was more favourable if the patient

usual surgical method, and then treated it by diathermy; in other cases I have made use of the suspension apparatus. Of the two methods I am convinced that the latter is the better where it can be employed. It is almost impossible to close the pharynx again after an extensive use of diathermy, and for the smaller growths the suspension apparatus affords a good exposure. The two methods may be combined. The growth may be treated on the surface by diathermy with the aid of the suspension apparatus so as to mitigate as far as possible the sepsis, and later it may be removed by ordinary surgical methods through an incision in the neck. Here again, however, every case must stand on its merits.

How much should one attempt at one operation? Diathermy, it is conceded, is followed by little or no shock, much less, indeed, than follows operative procedures of equal severity by ordinary surgical methods. Indeed, it is surprising how brisk and well these patients are some hours afterwards or the next day. I am convinced, however, that there is more seeming than reality in this feeling and appearance of well-being. The stimulation has been made at the expense of something, probably the heart muscle. These patients with such advanced sepsis as obtains in serious malignant disease of the mouth and throat are not good subjects, either for prolonged anaesthesia or for protracted operative procedures. Though they appear very well the day after the operation, in three or four days they are, most of them, very much the reverse, and death occurs sometimes suddenly from heart failure. No doubt great care is required in the nursing. Discrimination, however, must be observed in regard to the extent of operative procedure carried out at one time. If the palliative treatment of an inoperable growth is undertaken it is easy to coagulate it in stages, but where it has been decided that there is a chance that a growth may be entirely removed, there is the temptation to complete the operation at once. In some cases, of course, the call is for non-interference: the disease is too widespread and advanced, and the inevitable end too near. In view of the benefit obtained even in advanced and inoperable cases there are very few patients to whom some measure of relief will not be given. The diagnosis of malignant disease of the mouth and throat is another story, much of it tragedy, but in Glasgow, to which patients come from remote districts in the West of Scotland, Highlands, and Islands, some terrible cases of this disease are seen. In other parts of the country, less isolated, I should expect the patients to present themselves or to be sent earlier and at a time when there is no hesitation in advising the use of surgical diathermy with one or other aim.

Extent of the disease is not the only point we have to consider; its position will also determine the prospect of treatment by diathermy. Broadly speaking, this method decreases in suitability as the site of the disease descends from the alveolus to the oesophagus. The cases most suitable are those in which the growth is confined to the mouth, including the tongue, upper jaw, palate, fauces, and floor of mouth. For these I claim that removal by surgical diathermy, or, for inoperable cases, treatment by surgical diathermy, is the method *par excellence*. For operable cases of the lower pharynx, for post-cricoid carcinoma, and for malignant disease of the larynx, diathermy is altogether unsuitable. In these regions it is only of value as a palliative measure in inoperable cases, in which a great measure of relief has been afforded in a number of instances. In malignant disease of the oesophagus it is possible that with increased experience temporary relief may be given by this method in conjunction with others.

The accompanying tables show the results of treatment in 122 cases which have been operated on during the four years 1922-25.

TABLE I.—*Particulars of 122 Cases of Malignant Disease of the Mouth and Throat operated on by Surgical Diathermy (1922–25).*
(Males 106: Females 16. Ages 34 to 74.)

Position of Growth.	Males.	Females.
Tongue	13	1
Tongue and floor of mouth	30	1
Fauces, soft palate, tonsil, and (in some) tongue	25	2
Pharynx	16	5
Upper jaw	20	6
Oesophagus	2	1
Total	106	16

Of these cases 39 are alive, 69 are known to have died, and 14 are untraced. The disease was localized in 33, extensive in 60, and otherwise inoperable in 29.

TABLE II.—*Showing Period of Survival of the 69 Patients who Died after Operation.*

Position of Growth.	Under 1 Month.	1 to 6 Mos.	6 to 12 Mos.	1 to 2 Years.	Over 2 Years.
Tongue	6	—	1	—	—
Tongue and floor of mouth	10	3	3	1	—
Fauces, soft palate, tonsil (and tongue)	8	4	1	1	2*
Pharynx	9	7	1	1	—
Upper jaw	2	2	2	2	—
Oesophagus	1	1	1	—	—

* One of these, a male, died of diabetes in March, 1926, three and a half years after operation for epithelioma of the fauces with glandular involvement. There was no recurrence of the malignant disease.

GENERAL DISCUSSION.

Mr. W. G. Howarth (London) considered that diathermy was the method of election in dealing with malignant disease in the pharynx and the pyriform fossa, even though it did not appear ideal from the surgical standpoint. He did not think that diathermy removal implied slow healing or increased infection. He was impressed by Mr. Steward's method of feeding through a pharyngeal tube introduced through the wound. If surgical removal was contemplated and the patient had carious teeth, he would allow three or four weeks to elapse after their extraction before operating; if the teeth were sound then operation need not be delayed.

Mr. Musgrave Woodman (Birmingham), referring to the use of diathermy, said he had had sixty patients with oesophageal disease under his care during the last three years, and had operated 105 times. He had not cured a single case, and he was not even sure that he had been able to prolong life to any appreciable extent. In nearly all instances he had been able to keep the patient eating ordinary food *per vias naturales* until death ensued from extension of the disease. The results were superior to those of gastrostomy, and throughout the disease the patient was able to swallow freely by the ordinary route. The operation was well borne, produced very little shock, and the patient left the hospital two or three days afterwards, eating and swallowing well, and in good condition. The present value of diathermy in the oesophagus was limited by the anatomy of its situation. In the absence of a peritoneal coat and of any fibrous tissue in its wall, it was extremely difficult to produce artificially an irritant fibrosis around the oesophagus sufficiently dense to prevent leakage during the time the growth was being destroyed. In experimental work on monkeys he had injected warm paraffin wax and suspensions of silica in glycerin, and had transfixed the oesophageal wall with electrolytic needles. In every case at the *post-mortem* examination of the animal no trace of the injected material was found and no resulting fibrosis was produced.

Dr. William Hill (London) gave a lantern demonstration of his special radiumtherapeutic apparatus and technique, and showed the radiographic appearances in selected cases of malignant strictures before and after radium applications. If, for example, an annular stricture was about an inch long, a silver cylinder 1 mm. thick, as used at the Radium Institute, could be employed enclosing a capillary tube 3 cm. long containing either a pure radium salt or else radon, with an emanation equivalent of radioactivity equal to that of 50 mg. of radium bromide—

before he was first seen, when he strained the right hip while running. Since then the hip had ached a bit and was worse if he walked. He said the hip was a bit stiff. On examination there was no limitation of movement in the hip, but full flexion and extension caused pain and there was some tenderness over the front of the joint. *X* rays showed a fluffy piece of bone near the upper lip of the acetabulum on each side. The acetabular shadows on both sides were distinctly irregular, but the heads of the femora were smooth and rounded.

The appearance of these two fragments of bone in this case does not, it is admitted, strongly suggest a sesamoid bone, but the situation is the same as in others in which the regular oval shape of the bone fragment is much more suggestive of a sesamoid. It may well be that all loose fragments in this situation have not the same origin. Abnormal ossification of the acetabulum would seem to be at any rate uncommon. We hope to hear whether others have met with this condition associated with symptoms referred to the joint. Juxta-epiphyseal strain should, I think, be regarded as the initial stage of an adolescent coxa vara; it is considered under this heading below.

2. *Traumatic Synovitis and Arthritis with Adolescent Coxa Vara.*

This group is so well recognized that little need be said about it. The cases are preceded, as a rule, by more definite trauma than in the preceding group, and are distinguished by limitation of abduction, raising of the trochanter, and shortening, to some extent at any rate, while the *x*-ray pictures are characteristic. In the early stages, the juxta-epiphyseal strain of some authors, there is widening of the epiphyseal line—the head of the femur appears to be loosened from the neck—and there is always a little displacement which accounts for the shortening. It is hardly necessary to emphasize the importance of recognizing and treating these cases in the early stage and thus preventing gross displacement of the femoral head. Mistakes can only be avoided by invariably looking for this lesion and making a minute comparison of the shadows thrown by the two hips. These early cases complain of a limp and pain on walking, beginning immediately after the trauma, but may show no limitation of movement, not even of abduction, though a slight degree of shortening is always present.

When gross displacement is taking place, or has taken place fairly recently, traumatic arthritis with its accompanying spasm limits the movements of the joints more or less completely. It is this condition which is so often mistaken for tuberculosis, in spite of the fact that the limb is not flexed but is markedly everted, and the trochanter is already raised well above the normal level. If the normal anatomy is not restored—and this, unhappily, is rarely possible—the joint is permanently damaged and is susceptible in a marked degree to osteo-arthritic changes.

3. *Infective Arthritis—Acute, Subacute, and Chronic.*

The acute case with a high temperature and a polymorph leucocytosis gives little difficulty in diagnosis. Common organisms are the staphylococci, streptococci, and pneumococci. All degrees of virulence of the infecting organisms are met with, particularly, I think, the staphylococci. The same pyogenic organism can cause all grades of arthritis, even, occasionally, in the same patient. One inflamed joint goes on to suppuration while another in the same patient remains dry. A well marked case was met with in an adult some months ago.

A man, aged 50 (under the care of Dr. Fraser), developed an acute arthritis of one hip, with a very high temperature and leucocytosis. The hip-joint was opened and found to be bone dry, yet a culture grew pure *Staphylococcus aureus*. The joint was closed, and the wound healed by first intention and remained healed. Erosion of the cartilage surfaces was present and this progressed during the following weeks. The swinging temperature continued and the knee on the same side became affected. After a few weeks a small abscess was opened on the inner side of the knee and from this *Staphylococcus aureus* was grown. Eventually the knee was freely opened and the patient recovered with ankylosis of both joints.

Recently we have seen a case with acute osteo-myelitis of one femur and acute non-suppurative arthritis of the opposite hip-joint.

A boy, aged 4½ (under the care of Dr. Grosart Wells), developed acute osteomyelitis of the lower end of the left femur. This was operated upon, and *Staphylococcus aureus* grown from the pus. Almost from the first the child complained a little of the right hip. This joint was eventually opened and was found to be dry, so the wound was closed. It healed and remained healed. Two weeks later *x* rays showed subluxation of the head of the femur, which rather suggests that at one period the capsule had been distended, the fluid becoming absorbed later. The subluxation was easily reduced by extension and gradually increased abduction.

This is not the place to discuss in detail the treatment of acute arthritis, but one or two points may be touched on. If the hip requires opening at all, I believe in obtaining thorough drainage. This necessitates the making of a posterior incision, whether the joint has been first opened in front or not, but it does not involve the insertion of a tube beyond the opening in the capsule. When, however, the child is young, the signs and symptoms rather subacute, and the fluid in the joint thin and flaky, a pneumococcal infection may be suspected, and the wound may be closed after a thorough irrigation of the joint with saline, with a fair prospect of success.

Another point which I venture to emphasize in connexion with acute arthritis of the hip-joint is the importance of maintaining abduction for several weeks in order to avoid dislocation. Retention of abduction for four weeks, for instance, is not long enough. After a minimum of four weeks' abduction with extension the limb should be retained in abduction by a plaster case for at least another two months. Dislocation is extremely common without any gross erosion of the bones having occurred, both when the joint has been drained and when it has been washed out and closed, and it may even occur without the joint having been opened at all.

Brief reference must here be made to coxitis secondary to osteomyelitis of the femur. The exact diagnosis in these cases is often extremely difficult, not only as regards the presence or absence of an infection in the bone, but also, when this is certain, as to the condition of the joint. When an acute infection starts in the head or the neck of the femur arthritis is always present by the time the case is operated upon, but when the disease begins near the epiphyseal line of the greater or lesser trochanter the possible involvement of the joint becomes a question of the first importance. If aspiration, through unbroken skin, fails to yield conclusive evidence as to the condition of the joint in such a case, I think the bone lesion should be freely dealt with and the patient watched. If after a couple of days the state of the temperature and pulse and the local signs still give cause for anxiety, the joint should be opened and drained.

I have long believed that a mild strain of staphylococci accounts for many cases of subacute and chronic non-suppurative arthritis, with or without erosion of the joint surfaces, but it is difficult to prove this. It is, of course, the subacute or chronic case which causes us the greatest difficulty in diagnosis. For instance, we commonly see patients with definite signs of arthritis of one hip, the symptoms having been present only for a few weeks, with little or no temperature, and negative *x*-ray findings. The joint is flexed and abducted and movements are restricted or obliterated in all directions. Although considered to be non-tuberculous, such a case, in my opinion, requires immobilization, preferably with extension, and a fresh *x*-ray examination after a month; and this should be repeated again after a further month if necessary. The usual sources of infection, particularly the tonsils, are examined, and, if necessary, dealt with radically. Time is necessary to clear up the diagnosis. If non-tuberculous, all spasm has usually disappeared in four to eight weeks, and radiograms are still negative. The child is kept in bed without fixation for a few days, and then allowed up, the recovery usually being complete and permanent. Occasionally recovery is delayed and some doubt as to the nature of the case remains; removal to the country—if this has not already been done—for a further period of fixation is then necessary.

What is the nature of the infection in these cases? In my opinion it is probably staphylococcal. The von Pirquet reaction I do not rely upon. A positive reaction is useless; a negative reaction deserves to be considered as a link in the chain of evidence.

Another question upon which I would invite discussion

was edentulous, but the most favourable condition was when the mouth had been cleared of septic teeth about three weeks previously. The immunity of the patient seemed then to be highest, and primary union without leakage or sloughing might be obtained.

Mr. F. J. Steward, in reply, said that his experience did not coincide with Mr. Colledge's on the dental question. He would have all septic teeth removed before operation, but he had not found that the presence of sound teeth had militated against primary union. In regard to diathermy, he would stress the importance of an adequate exposure of the growth before applying the electrodes, and of the preliminary removal of glands, if surgically possible. He had not found that diathermy was unsatisfactory in malignant disease of the deep pharynx or in extrinsic laryngeal growths; rather the reverse. His rule was to remove small growths surgically and large ones by diathermy.

Dr. Knox, in reply to the question raised regarding the term "lethal dose," said it was necessary to realize what was meant by the lethal dose in reference to malignant disease. The generally accepted explanation was that given by Seitz and Wintz of Erlangen, who, in their valuable work, laid down the rule that if the erythema dose was taken as 100 per cent., the lethal dose for cancer worked out at from 90 to 110 per cent. of the erythema dose. This had been found to be more or less inaccurate; the lethal dose for cancer might vary in wide degrees from that estimate, and in practice it had been found that if the lethal dose was given, the response was not invariably a favourable one. The method of estimating the dose at the depth was, however, based on the work of Seitz and Wintz, and it might be used as the standard of measurement of the depth dose.

Sir William Milligan rather doubted the benefit to be gained from preliminary gastrostomy. He would always remove a removable growth surgically and use radium subsequently to prevent recurrence. He only allowed patients in the sitting-up posture when they were quite out of the anaesthetic.

Dr. W. S. Syme said that in discountenancing the use of diathermy in malignant disease of the pharynx he was thinking rather of the larger growths, and the virtual impossibility of closing the pharynx. He was not inclined to remove a large growth by diathermy without an anaesthetic.

SECTION OF ORTHOPAEDICS.

E. Muirhead Little, F.R.C.S., President.

DISCUSSION ON NON-TUBERCULOUS COXITIS IN THE YOUNG.

OPENING PAPER

BY

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Last year a discussion took place in the Orthopaedic Section of the Royal Society of Medicine on the differential diagnosis of non-tuberculous coxitis in children and adolescents. In the admirable paper with which he opened that discussion, Mr. Alan Todd raised points of great interest and importance: upon these points those who heard his paper or read it afterwards have now had ample time to ponder. At the request of the President of this Section I shall endeavour to cover the same ground as was covered in the discussion at the Royal Society of Medicine last year, confining my remarks to the affections of the hip-joint met with in children and adolescents.

Now, I take it that, speaking generally, coxitis arises either from trauma or from infection. By trauma I mean the repeated minor injuries incidental to anatomical abnormalities, whatever the cause of these may be, which involve a want of fit between the head of the femur and the acetabulum, as well as violence applied directly or indirectly to the joint from without. There are affections of the hip-joint, I admit, the exact nature of which is still in doubt, and in which the part played by infection has yet to be decided. For instance, what is the cause of pseudo-coxalgia, or of arthritis deformans juvenilis? We could spend a whole morning discussing either of these; I must content myself with brief references to them later. The subject of this discussion is so vast that it is only possible to touch on many of the interesting problems that present themselves. It will be my endeavour to clear the air, if I can, on some of the points raised in the previous discussion, and to invite the opinion of others upon some of the many debatable questions that are met with in the consideration of the various affections included in the title of this paper. As a basis of discussion I have drawn up the following classification of the common affections which may, I think, be legitimately included in "non-tuberculous coxitis."

Non-tuberculous Coxitis.

1. Traumatic synovitis and arthritis.
2. Traumatic synovitis and arthritis with adolescent coxa vara.
3. Infective arthritis—acute, subacute, and chronic. (Subsection—arthritis secondary to osteomyelitis.)
4. Acute rheumatic arthritis.
5. Rheumatoid arthritis (Still's disease).
6. Pseudo-coxalgia.
7. Coxitis complicating congenital dislocation of the hip: (*a*) Villous; (*b*) Absorptive; (*c*) Osteo-arthritis.
8. Arthritis deformans juvenilis.

It may be noticed that this classification differs in some respects from that of Mr. Todd. For instance, "coxitis of secondary onset" has been entirely left out. Surely infective coxitis, whatever the causative organism, whether this be the tubercle bacillus or one of the pyogenic organisms, is invariably secondary to some other lesion, though this primary lesion from which the blood-borne infection arises may not be easily found. Then again, the nature of the arthritis depends on the particular organism responsible for it, and upon the virulence of that organism, and not upon the mode of entry of the infection. Arthritis of the hip in a case in which the mode of infection is obscure is precisely the same disease as arthritis that follows appendicitis or a sore throat. Those cases of arthritis of the hip-joint which begin as an acute osteomyelitis of the femur—or more rarely of the pelvis—might legitimately be called secondary, I agree, but they are only a variety of acute suppurative arthritis and should, I think, be considered under this heading. I cannot help feeling that we are in danger of multiplying the varieties unduly, and I would suggest that we should aim at simplification in our grouping of the cases and should avoid adding to our classified list until we are certain that a particular type of case really deserves a separate heading. No doubt future experience will lead to a further grouping, as has happened in the past, but it behoves us to be wary that any such separation of a group of cases is really justified on clinical or bacteriological grounds.

1. *Traumatic Synovitis and Arthritis.*

It is sometimes forgotten—probably because of the difficulty of palpating the joint as compared with the knee, for instance—that the hip-joint is subject to synovitis as a result of a strain. There is little doubt that this is the true diagnosis in many cases of pain and disability following trauma.

Limitation of movement in such a case usually does not involve all movements, and complete recovery follows, as a rule, in a few days with simple rest in bed without a splint or extension. Some even recover without any rest at all. In one or two such cases lately the radiogram has revealed the presence of an oval piece of bone opposite the outer part of the anterior margin of the acetabulum. This loose fragment of bone may be in a definite notch in the margin of the socket, and it is suggested that it may be a sesamoid in the reflected head of the rectus femoris. Is it possible that the presence of a loose fragment of bone in this situation, whatever its nature, renders the part more liable to strain?

A boy, aged 13, sprained both hips when jumping, at the age of 5 years, the left being the worse; he was laid up for three months. Eighteen months later the right hip again gave trouble, laying him up for a month. He was quite well till a week

is hoped that we shall learn whether this statement is supported by the experience of others. It is possible that our conceptions of what is meant by this title differ somewhat, so it is perhaps advisable to state exactly what I mean. In my view arthritis deformans juvenilis is simply osteo-arthritis occurring in a patient far below the usual age at which we commonly meet with it. It is a chronic arthritis associated with pain, progressive limitation of movement, and deformity. The pathological changes, as revealed by *x* rays, are slow erosion with a decided tendency to "lipping" at the articular margins. The conditions which favour the onset of these osteo-arthritic changes in the young are congenital subluxations, unstable hips with imperfectly formed acetabula, adolescent and traumatic coxa vara with permanent displacement of the head on the neck of the femur, fracture of the femoral neck with or without union, pseudo-coxalgia, acute arthritis, particularly when complicated by pathological dislocation requiring replacement, and no doubt others. Whether the secondary arthritic changes are due to infection in addition to chronic trauma is uncertain, but it would appear probable that infection plays a more important role in those cases, such as Mr. Harry Platt describes in his paper on pseudo-coxalgia, in which the arthritis seems to be primary. My impression is that these last have a decided tendency to be bilateral. I have met with it once in a female of 16; the radiogram in this case shows a remarkable symmetry in the deformation of the two femoral heads.

There are other forms of coxitis occasionally met with that are difficult to classify. For instance, we have seen a bilateral case in which the *x*-ray changes were confined to the inner or lower part of the two joints. These rarer types are, I think, better left out of the discussion to-day. Gonorrhoeal, meningococcal, typhoid, and dysenteric arthritis, particularly of the hip, are so uncommon in children that they need only be mentioned. Haemophilia affecting the hip-joint I have not seen. An effort has been made at least to refer to all the common groups of cases, and to call attention to some of the points which seemed to me most worthy of discussion.

GENERAL DISCUSSION.

Mr. S. W. Daw (Leeds) considered Mr. Fairbank's classification of non-tuberculous coxitis a very good one, but he suggested that the last group—arthritis deformans juvenilis—might be omitted, as he was not yet satisfied that it existed as a separate primary entity, though a condition of this type might follow any of the other groups, except, perhaps, acute rheumatism. It was often difficult to fit cases of hip trouble into any of the recognized groups; it was better to leave these ungrouped until there was more certainty, and he suggested that arthritis deformans juvenilis should be allowed to remain unclassified. In rheumatoid arthritis (Still's disease), difficulties of diagnosis in the earlier stages were perhaps due to imperfect observations, and Mr. Daw described two cases to illustrate the fact that the development of multiple joint lesions might be slow. It was sometimes difficult to distinguish pseudo-coxalgia from tuberculosis, but it was nearly always the case that in pseudo-coxalgia the *x*-ray developments were in advance of the clinical symptoms, whereas the reverse obtained in tuberculosis. Many patients with congenital dislocation of the hip continued for a long time with very little pain.

Mr. S. T. Irwin (Belfast) showed some anatomical specimens to demonstrate the formation of the upper end of the femur and its mode of ossification. A careful investigation of these, in his opinion, explained several of the important problems associated with injuries and inflammations occurring at the hip-joint. Five specimens of the upper end of the femur were shown, forming a series at the respective ages of birth, 1 year, 2½ years, 6 years, and 13 years. He stated that at birth the upper extremity of the femur formed a single cartilaginous mass which included the head, the neck, and the greater and lesser trochanters; development of the upper end of the femur was produced rather by a growth from the diaphysis than from the ossific centre which subsequently formed. At one year the greater part of the upper extremity was still cartilaginous, but two important changes had occurred—namely, the deposit of a small ossific centre in the caput, and an upward growth of the diaphysis into the inferior aspect of the neck. This growth during the second year separated the lesser trochanter from the upper extremity proper, and also extended into the neck, but the great mass of the extremity, including the head, the upper part of the neck, and the great trochanter, remained cartilaginous. At 2½ years the conformation had not materially altered. There had been further growth in the mass of bone arising from the diaphysis which formed the neck and some enlargement of the epiphyseal bone, but the main portion of the head was still cartilaginous, and a thick layer of cartilage on the upper aspect of the neck connected the head with the great trochanter. At 6 years there was yet no material change in the distribution of bone and cartilage. The neck had become slightly longer, the amount of bone relative to cartilage was greater, but a firm cartilaginous bar still ran from the great trochanter to the head, and it was to this connexion of cartilage that he wished to draw special attention. A dry specimen at the age of 13 years showed the bony formation of the neck complete, the cartilage of the great trochanter having been completely separated from the cartilage of the head itself; this completely surrounded the ossific centre, which had greatly extended in the meantime; at this age the articular cartilage was still continuous with the epiphyseal line of cartilage. At a later stage a differentiation of these occurred, and ultimately the epiphyseal line disappeared.

Summarizing these points, therefore, it might be concluded that at birth the whole of the upper extremity of the bone was cartilaginous, that growth of bone to form the neck originated from the diaphysis, and that a bar of cartilage connected the caput with the great trochanter up to at least the age of 10 years. A consideration of these anatomical points explained the variations in the inflammations in the neighbourhood of the joint—namely, an acute arthritis would destroy whatever portion of bone and cartilage arose from the epiphysis; on the other hand, an acute osteitis commencing in the neck would destroy the bone arising from the diaphysis but, in the early stages at all events, spared the cartilage and bone arising from the epiphysis. A series of slides was shown to illustrate these variations. In one case of acute arthritis occurring soon after birth the whole of the upper extremity corresponding to the cartilage was destroyed by acute arthritis, the patient being left subsequently with little more than the shaft and great trochanter, and a flail joint resulted. Another case of arthritis, occurring at the age of 10, showed destruction of that portion of bone arising from the epiphyseal cartilage but preservation of the neck of the bone, which at this stage was well formed and was of considerable importance to subsequent function, as it supplied a strut which, when returned to the acetabulum, supported the weight of the body. In a case of this sort comparison of the affected with the normal side showed this point clearly. Acute arthritis in the adult, on the other hand, was followed only by destruction of the articular cartilage; hence the difficulty in reducing such cases when a pathological dislocation occurred and was unreduced for any length of time. Several cases were shown of acute osteo-periostitis commencing in the diaphysis, as was usual. It was unusual for the inflammation to extend in a suppurative form from the diaphysis to the joint cavity and to find destruction of the epiphysis, whether cartilage or bone, resulting from the osteo-periostitis; hence there was no complete separation between the head of the bone which remained in the acetabulum and the great trochanter. This was exemplified by lantern slides of a patient, aged 5, who developed an acute osteo-periostitis in the upper end of the femur. Special attention was directed to the problem of slipped epiphysis in relation to the anatomical changes which occurred with age and growth in the upper end of the femur. It was common knowledge that these cases did not occur below the age of 10, and the most common time to find them was rather later than this. The speaker's explanation of this fact was that

is this: Is an attack of measles sometimes followed by coxitis with special characteristics which distinguish it from other forms of arthritis of the hip-joint? Non-tuberculous coxitis appears to be a distinctly uncommon sequela of measles, while tuberculous hip disease is more often met with. Careful inquiry among my colleagues at the Hospital for Sick Children, Great Ormond Street, showed that, without exception, their experience agrees with my own. We have no reason for thinking that there is a special form of arthritis associated with measles. When coxitis follows an attack of measles, and is non-tuberculous, it is the result of infection by one or other of the common pyogenic organisms, and this arthritis differs in no way from that caused by the same infections in other patients.

With regard to scarlet fever, the question is rather more difficult. Arthritis in the early convalescent stage of this fever is much more common than after measles, and often takes the form of "rheumatism," which is said to have special features of its own by those with the greatest experience of infectious fevers. While simulating ordinary acute rheumatism in some ways, it differs in certain important respects. There would appear to be, however, no clear line to be drawn between cases of the rheumatic type and those in which the arthritis goes on to suppuration; and it appears to be reasonable to suppose that the presence in the joint of toxins only or of actual infection with streptococci of variable virulence accounts for all the forms of arthritis met with after scarlet fever, and that these are similar in every way to grades of arthritis met with apart from this particular infectious disease.

A few words are necessary on the relation of infected tonsils with arthritis of the hip. Few will question, I think, that the throat (and mouth generally) not uncommonly provides the path by which micro-organisms enter the body and cause acute coxitis, and also that there are cases in which arthritis of the hip-joint, less often perhaps than of other joints, has cleared up rapidly after a "spring clean" of the throat, nose, and teeth. The exanthematous fevers unquestionably favour the entrance of organisms by these paths. I would, however, dispute the correctness of regarding coxitis following the removal of tonsils and adenoids as a not very uncommon occurrence—common enough, in fact, as suggested by Mr. Todd, to warrant special mention in a class of "secondary coxitis." Our combined experience at the Hospital for Sick Children—and this experience runs into very many thousands of operations on the throat—fails to provide a single case of arthritis following enucleation of the tonsils. We have, it is true, seen cases of arthritis arising at varying periods subsequent to removal of the tonsils and adenoids performed elsewhere, but invariably such cases were found to have masses of septic tonsil still present in the fauces, necessitating a second operation. I know of one solitary case, that of a medical man, where a mild coxitis followed total removal of the tonsils by a first-class throat specialist.

4. *Acute Rheumatic Arthritis.*

Acute rheumatic arthritis need only be mentioned. It forms a group with such characteristic clinical features and complications that it is convenient to continue to separate it from other forms of infectious arthritis.

5. *Rheumatoid Arthritis (Still's Disease).*

Rheumatoid arthritis may present difficulties in diagnosis in the early stages when the hips are the first joints to be affected, but this would seem to be a rare occurrence. The involvement of other joints before long (the cervical spine being often affected early in the course of the disease), the enlargement of the lymphatic glands and spleen, and the *x*-ray appearances, should make the diagnosis clear.

6. *Pseudo-Coxalgia.*

The characteristics of this affection are becoming so well known to all branches of the profession that mistakes in diagnosis are now far less common than they were. The radiographic change typical of this disease may, however, be closely simulated for a time by other affections of the joint, notably tubercle. It behoves us, therefore, to treat as tuberculous any doubtful case until time and further *x*-ray examinations make the diagnosis clear. May I be allowed to remind you that there are two clinical stages of pseudo-coxalgia in which the differentiation from tuberculous coxitis may be difficult and the help of a first-class radiogram essential. First, when limitation of movement involves abduction only, or abduction and internal rotation, the case may suggest the pre-arthritic stage of tuberculous coxitis; by this I mean the stage in which a tuberculous deposit is present in the neck of the femur or beneath the acetabular cartilage, but in which as yet there is no general arthritis. The healthy condition of the child, and perhaps an entire absence of pain, may suggest a non-tuberculous diagnosis, but often the radiograms have to be relied on to decide this matter. Secondly, when spasm limits all movements in pseudo-coxalgia, tuberculous arthritis may be closely simulated. The diagnosis must depend on the points mentioned above; the rapid disappearance of the spasm on immobilization with extension is in favour of pseudo-coxalgia.

7. *Coxitis complicating Congenital Dislocation or Subluxation of the Hip.*

The arthritis which is discovered within a few weeks or months of reduction of a congenital dislocation seems to be essentially traumatic in origin, but that a mild infection plays a part, in some cases at any rate, is rather being forced upon us by further experience. It is certainly wise to postpone reduction in children not in perfect health, and any obvious infective foci that are found must be eliminated in all cases before operation is proceeded with. With regard to the cases that for one or other reason have been left without treatment, I cannot help feeling that the opinion, which would seem to be pretty general, that the onset of pain and increasing disability at a comparatively early age is inevitable, is hardly justified. Though difficulty in walking may increase long before a patient is fully grown, particularly in bilateral cases, a fair number of cases are met with in adult life with surprisingly little discomfort referable to the hip-joint. It is my belief that the pain from which many of these cases, at any rate, sooner or later suffer is due to arthritis rather than to mere static conditions. Further investigation on this point is urgently required, if our methods of treatment are to be on the right lines. Villous arthritis has been found in an untreated dislocated hip in a girl of 13 years who could not walk more than a few hundred yards. The radiogram was negative to any obvious arthritic change. Is this form of arthritis the usual cause of the pain in the cases which show little or nothing in the way of erosion or lipping of the femoral head? If this suggestion—and it can be nothing more than that at present—is correct, the formation by operation of a bony shelf above the displaced head is surely unlikely to afford relief of the symptoms. On the other hand, gross absorption of bone and flattening of the head of the femur may occur. These changes we see more particularly in untreated subluxations, and especially after reduction in a child rather older than is desirable, both when the reduction has been successfully maintained and when a partial relapse has occurred. This type some years ago we ventured to call "absorptive arthritis"; the loss of tissue may be extreme—enough to suggest a neuropathic joint.

Lastly, osteo-arthritis—and this constitutes one form of arthritis deformans juvenilis—may develop whether the dislocation has been treated or not. This type is met with typically in adults with a poorly formed acetabulum and only the smallest degree of displacement of the femur. The underlying congenital defect is sometimes overlooked.

8. *Arthritis Deformans Juvenilis.*

With regard to this form of arthritis, we may usefully ask ourselves whether it ever occurs as a primary affection of a previously normal joint. Though it is probable that it may occur in rare cases as a primary affection, with or without antecedent trauma, it is, I suggest, substantially true to say that juvenile osteo-arthritis affects a hip which has been definitely damaged anatomically by trauma or infection, or is the seat of a congenital malformation. It

boys complained of chronic pain, and nothing else could be found to account for it, though upon *x*-ray examination it was often found that a similar anomaly of ossification was present in the other hip as well. As a rule the symptoms disappeared after a short period of rest, and as the boy grew older the various islets coalesced and the trouble ended.

The question of testing a suspected case of coxitis for tuberculosis had acquired a special importance in view of the fact that public bodies assumed financial responsibility for the treatment of these long and expensive cases when they were definitely diagnosed as tuberculous, but, as a rule, not otherwise. Mr. Todd had often been asked whether he was prepared to certify a given case as tuberculous, since the county medical authorities would then be prepared to provide all necessary institutional treatment, and to pay for it for several years. He feared that many were often sorely tempted to certify a doubtful case as a ready means of circumventing this unfortunate distinction. Apart from this, it was extremely important to distinguish the two classes if possible, for the non-tuberculous patients required, as a rule, a very much shorter treatment than did the tuberculous ones, so that to treat all doubtful cases as if they were tuberculous caused much unnecessary trouble to the patients and an enormous and unnecessary expenditure of public money. Mr. Todd thought that an "activation test" was a useful method of distinguishing, and quite harmless. He began by putting the patient to bed, without splints or weight-extension; if all the symptoms subsided after about two or three months he allowed the patient to walk about a little. If the case was tuberculous recrudescence of symptoms soon occurred, though the speaker had never known a case in which the disease was lit up by this test to any serious extent. On the other hand, if the case was not tuberculous, it would probably be found that the symptoms had disappeared finally, and in this way some one and three-quarter years of unnecessary splintage and expense were saved. It was necessary to record the temperature of the patient—at rest and after activity—with great accuracy; the readings should always be taken at fixed times—namely, half an hour before rising and half an hour after returning to bed. Gonorrhoeal arthritis in children was quite uncommon as a sporadic disease, but in epidemic vulvo-vaginitis, as occurring in hospital wards, it was a fairly frequent complication and usually a protracted one. Dr. Knyvett Gordon had suggested that a histological examination of the blood should always be made in these doubtful cases. He had stated that in closed tuberculosis a blood count would almost always show leucopenia with relative lymphocytosis characteristic of a bacillary lesion, while in the infective group, usually due to coccal sepsis, leucocytosis with relative predominance of granular cells would be the rule. Mr. Todd had as yet had no opportunity of testing this suggestion, but said that only by making a collective investigation of every likely suggestion would increased knowledge of this difficult type of case be obtained. He hoped that the profession generally would not be misled into thinking that orthopaedic surgeons regarded the efficient early treatment of congenital dislocation as being other than of vital importance. The usual result of failure to reduce a dislocation was a life of absolute crippledom, and frequently of acute suffering. Even to-day there were far too many cases in which the parents had been told that there was nothing much the matter, and that the child would grow out of it; or else that nothing could be done until the age of 10 years or so, by which time there was very little that could be done. It should be widely announced that in a case of congenital dislocation of the hip all efforts must be made to secure complete reposition of the head of the femur at an early age. In several cases in which reduction had not been effected Mr. Todd had found that treatment for some years by means of a fully weight-relieving calliper splint had resulted in satisfactory stabilization of the femur in its new position, and he was inclined to think that in the case of many delicate children this was the best treatment to adopt, for all the standard methods of fashioning a new acetabulum, by means of turning down flaps of bone, implantation of large grafts, and the like, involved a very considerable operative shock, and were associated with formidable operative mortality.

Mr. F. C. Pybus (Newcastle-on-Tyne) considered it important to simplify, so far as possible, the classification of the joint diseases, especially for teaching purposes; the primary division must be into tuberculous and non-tuberculous. It was also important, as suggested by Mr. Platt, to have some idea of the relative frequency of the various lesions at different age periods so that the student or practitioner might distinguish between possibilities and probabilities. It had been suggested that in pseudo-coxalgia the radiographic findings were often in advance of the clinical picture; while this was probably the commonest state of affairs, there were patients with signs and symptoms of early hip disease in which no bone change was found. Radiographic examination at a little later stage might show definite evidence of pseudo-coxalgia. Extensive bone changes might be apparent when a patient was clinically cured. He had felt some doubt as to the existence of osteo-chondritis juvenilis as a definite entity, for while the radiographic picture suggested it—by an irregularity in the bony wall of the acetabulum—this appearance was seen in normal joints, and on the sound side in some cases of unilateral pseudo-coxalgia. The greatest difficulty in diagnosis was, perhaps, in children with symptoms and signs of early hip-joint disease but without demonstrable bone or joint lesion. A period of rest for a few weeks or months might show complete resolution. After this period an examination might be made or the patient allowed exercise as a diagnostic test. There was no need to fear damage being caused by some test exercises, for, as Dr. Rollier had shown, a small degree of movement, even in tuberculous joints, was not harmful. Some years ago, when investigating the blood supply of bones, Mr. Pybus had been struck by the vascularity of the cartilaginous ends of foetal and young bones, even before the appearance of an ossific nucleus. These vessels were well seen in Mr. Irwin's specimens, and an acute arthritis of the hip in an infant represented a very unusual condition of a blood infection of hyaline cartilage.

Mr. W. A. Cochrane (Edinburgh), referring to Mr. Irwin's account of the development of the capital epiphysis of the femur in its relation to epiphyseal separation, said that an additional point of interest in this connexion was the variation in the manner in which the capital epiphysis was set upon the neck of the femur. The line of epiphyseal cartilage might occupy the horizontal or the perpendicular plane. Mr. Cochrane thought that in the latter case epiphyseal strain and separation were more liable to occur. There might possibly be some relation between slight and neglected epiphyseal separation and the later development of cervical coxa vara. As growth proceeded, the main incidence of the bending must come to lie further and further away from the epiphyseal line, until it might finally reach its maximum in the cervico-trochanteric region of the neck. In the post-operative treatment, by drainage, of acute infective arthritis, early active movement should be encouraged. The consideration of chronic infective arthritis in regard to the removal of foci of infection was of the first importance. It had been the speaker's experience that the cases which benefited were made temporarily worse of the arthritis. With reference to pseudo-coxalgia, he did not think that it was always the case that gross *x*-ray changes usually preceded the onset of the clinical features. He had recently seen a patient who showed all the clinical and *x*-ray features of pseudo-coxalgia. It was discovered that he had been to the hospital six months previously, complaining of pain in the hip and a limp, following a fall on the hip. At that time the skiagram of the hip showed a normal appearance. Was the connexion simply a coincidence or one of cause and effect?

Mr. Fairbank, in reply, said he thought Mr. Daw had made a good point as to the discrepancy between the advanced *x*-ray changes and the duration of the symptoms in pseudo-coxalgia, but this discrepancy was by no means always present. Time must be allowed to elapse before a definite diagnosis could be arrived at in rheumatoid cases when the hips were affected first. He regarded a typical

a separation of the upper end of the femur could not occur until there had been a separation of the cartilage of the head from the cartilage of the great trochanter. Lantern slides were shown of a patient, aged 14, in whom an *x*-ray photograph soon after the onset of pain showed the upper end of the femur normal. Three months later the case was found to be a well marked example of slipped epiphysis, indicating that there was a pathological condition precedent to the actual slipping. Another case was shown of bilateral separation of the epiphysis in a boy, aged 14, weighing over 12 st., with undescended testes and many of the secondary female characteristics. Cases of this sort would seem to indicate that some congenital defect was associated with the slipping of the epiphysis as well as a possible inflammatory change at the epiphyseal line.

Mr. Harry Platt (Manchester) said that the clinical picture of uncomplicated hip-joint irritability—to use a broad, non-committal term—was familiar in the out-patient clinic. So many and so varied were the lesions which, in their earlier phases at least, gave rise to the hip-joint syndrome that Mr. Fairbank's plea for simplicity in grouping must receive their support. It would be most instructive to determine the relative incidence of the various forms of non-tuberculous coxitis as compared with proved tuberculous coxitis in the out-patient material of large clinics. There had been a tendency to envisage coxitis as a whole from the standpoint of the segregated material of the tuberculosis dispensary or county orthopaedic hospital. Sundt, the author of the classical monograph on pseudo-coxalgia, had pointed out some years ago that tuberculous arthritis of the hip was a much rarer disease than was generally taught. Broadly speaking, a persistent hip lesion in a child under 5 was likely to be tuberculous arthritis; between the ages of 5 and 10 pseudo-coxalgia was at least as common as tuberculous arthritis; while in the second decade tuberculous hip disease became a comparatively rare lesion, the characteristic affection at this age period being traumatic coxa vara. At all age periods a transitory arthritis, due, presumably, to trauma or infection, might be seen.

Tuberculous arthritis proper presented little difficulty in diagnosis in the florid phase, but there was often a long period of uncertainty in the extra-articular forms. In primary tuberculous osteitis of the femoral neck the radiographic change was often recognizable soon after the onset of persistent limp and muscular pain. In a certain number of such cases spontaneous healing of the focus might occur under appropriate conservative treatment and the integrity of the joint cavity remained unimpaired. Unfortunately, such results were by no means the rule. Primary acetabular disease was often characterized by an unusually prolonged latent clinical phase, during which the diagnosis was in considerable doubt. In a number of such cases Mr. Platt's attention had been drawn to the existence of an early clinical sign which gave a lead—namely, enlargement of the iliac glands. French writers had always stressed the importance of iliac adenitis in the syndrome of tuberculous hip disease, but in England this valuable clinical sign had been neglected, and the student was rarely taught to look for it when examining a suspected hip.

There was another small, but definite, group of hip lesions in children, which fell into the atypical tuberculous coxitis class. In these the clinical symptoms, often intermittent, were those of a mild, persistent hip disease, in which repeated radiograms showed little or no change. The clinical course was comparable with the better known arthritis sicca of the shoulder-joint. In the end absorptive changes became evident, and the diagnosis might be settled by the appearance of a cold abscess. There was always the danger, in such cases, of countermanding prematurely the régime of immobilization. In the majority of cases the radiographic appearances of pseudo-coxalgia were sufficiently typical to be diagnostic. It was not true to say, however, that in every case of pseudo-coxalgia, when first seen, the radiographic appearances were always in advance of the clinical symptoms. There was a small group of pseudo-coxalgia cases in which the first onset of definite hip symptoms was associated with little or no radiographic abnormality; in Mr. Platt's experience such atypical cases were seen in older children, usually after the age of 10 years. The group of subacute and chronic infective synovitis and arthritis was surrounded by much obscurity. It was desirable to decide whether chronic infective arthritis of the hip arising *de novo* in children or adolescents was a definite clinical entity. From his own observations on this point he concluded that in children chronic infective arthritis of so-called primary origin did not exist as a clinical entity, though chronic arthritic changes of a destructive or hypertrophic type arose not infrequently in hip-joints which were already defective, either by reason of a mild degree of congenital subluxation or as the result of an old acute infective arthritis in early infancy. In the adolescent there were two chronic types of hip disease which might be considered to represent a primary chronic infective arthritis—namely, arthritis deformans juvenilis and dry arthritis. The clinical picture and radiographic changes of the first named were well recognized. He was formerly under the impression that this disease arose *de novo* in a normal hip-joint, but further observations had not produced conclusive evidence in favour of this view.

Mr. Platt agreed with Mr. Fairbank that arthritis deformans juvenilis represented a secondary development in an already defective hip. In the adolescent there was a definite non-tuberculous dry arthritis of the hip-joint, which ran a mild course, with moderate destructive changes leading to subluxation and ultimately ankylosis; French writers, and in particular Nové-Josserand, had long recognized this condition as a definite entity. It might be objected that it was often impossible to produce the final pathological proof that such cases were not a mild form of tuberculosis. In several hip-joints of this type, however, which the speaker had explored in order to perform arthrodesis, careful histological examination of tissues removed had failed to establish the presence of a tuberculous lesion.

Mr. Alan H. Todd (London) stated that his proposed class of cases of "coxitis of secondary onset" was suggested as a purely clinical and practical classification; he recognized that, apart from trauma, all cases were infective, and therefore secondary, but there was obviously a vast difference between an acute fulminating suppurative arthritis at one end of the scale and a chronic infective arthritis of many years' duration at the other. It was only by grouping together the various types of cases which had well defined and similar clinical characteristics that any progress would be made with the elucidation of this disease, until the time when the complete pathology became known. Juxta-epiphyseal strain must, he thought, be the first stage of cases of ordinary "slipped epiphysis"—traumatic coxa vara. In most of these cases there was an injury in the hip region, and after a short interval the epiphysis was found, by an *x*-ray examination, to have slipped. Now and again a case occurred in which the hip was *x*-rayed and no bony abnormality was discovered, and then, a few days later, when it was again *x*-rayed, the epiphysis was found to be slipping or actually separate. He had heard of a case in which three successive radiograms showed at first no abnormality, then the epiphysis beginning to slip, and finally the epiphysis actually displaced. It would appear that "juxta-epiphyseal strain" would be a correct description of the clinical condition present in a case of this sort, before the actual displacement of the epiphysis had begun. As regards the sesamoid bone in the reflected head of the rectus femoris demonstrated by Mr. Fairbank, Mr. Todd thought it might be a cause of hip pain in some cases; the fact that in many cases it caused no pain was no reason why pain should not be occasioned in some. An analogy was furnished by the case of the sesamoid in the tendon of the tibialis posticus, which seemed to account for pain under the inner side of the instep in some children, since treatment directed to this cause relieved their symptoms. In addition to the definite sesamoid described, Mr. Todd had come across another abnormality in the ossification in the edge of the acetabulum, generally in boys of 15 or 16 years; the edge of the acetabulum, generally at its upper part, appeared to be fragmented, and a number of separate islets of ossification were seen. In some of these cases the

were always widely straddled. Pain was severe, especially at night. Treatment was begun in November, 1924, and nine months later, for the first time in two years, the right hip-joint had flexed. Now there is no pain, no discomfort, and more movement.

Case 10.—A very heavy man, aged 52, complained of pain in the left knee-joint, and later in the hip-joint. He limped about painfully. Treatment was begun in June, 1925; by September he was better, and in November both pain and limp had disappeared.

It is clear from these cases that after treatment the disease had not progressed, and that the symptoms had cleared up. The claim is then made good, that osteo-arthritis of the hip-joint is curable, and that in successful cases patients can resume a full and active existence circumscribed only by the amount of bony changes. These are to be regarded as the results of the disease, and not as the disease itself. That the bony changes are not the cause of the pain is now obvious, for this has disappeared, although the radiographs show the condition of the joint to be unaltered.

The above cases are given as examples of very definite improvement or complete cure in osteo-arthritis mainly confined to the hip-joint. Of all cases treated rather more than 50 per cent. gave similar results. Whether or no the cure is permanent time alone will show, but from experience in other forms of osteo-arthritis I am confident that any relapse would quickly yield to a further course of treatment. Beyond saying that the chief vaccine used was made from streptococci obtained from foci of infection, no further details are here given, as I am shortly publishing a book on the subject, in which the methods used in this and other forms of arthritis and rheumatism are fully described.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PULMONARY EMBOLISM FOLLOWING CHILDBIRTH.

The following report of a case which I had under my care recently may be of general interest.

A woman, aged 39, gave birth to her third child; there had been very little warning of the onset of labour, and I was not present at the birth. The nurse said that she had not interfered in any way. As the placenta was a little slow in coming away I expressed it by Credé's method without vaginal manipulation. Five days later the patient complained of pain in the left thigh, and I found that many of the superficial veins were thrombosed. She then volunteered the information that she had suffered from a similar condition after the birth of her first child, and was at that time confined to bed for several months. I kept the patient in bed for a month, at the end of which time the pain had completely gone, there was no evidence of thrombosis, and she could move her leg quite freely. The temperature had been slightly raised for the first few days after the thrombosis was noticed. As a precautionary measure I kept her in bed for another week; she made rapid progress, and was soon able to get about. A fortnight after I had stopped attending, the patient developed a cough; I examined her chest carefully, but could find no evidence of anything pathological. There was no sign of thrombosis, and no complaint of pain in the legs. The next day she complained of pain on the left side of the chest under the breast, and I ordered her to bed. There was a little sputum with the cough. The symptoms suggested pleurisy, but I could find no evidence of its presence. Next day the pain was present on both sides of the chest; it was so severe that every movement caused agony. The temperature was 100° F., the pulse 85, and respirations 24; the breathing was irregular and gasping. It was difficult now to make a thorough examination, and all I could elicit was diminution in the expansion of the left side of the chest. The patient was obviously in a critical condition, and I could not determine the underlying cause. The nurse reported a slight degree of haemoptysis, which gradually became more severe. I had the sputum examined for tubercle bacilli, with a negative result. The next development was the onset of pain in the right leg, and I found that the superficial veins were thrombosed. It came to me in a flash then that the whole trouble had arisen from the impaction in the lung of an embolus from a vein in the leg. The subsequent course of the case confirmed me in this diagnosis, and the patient is now making an excellent recovery.

Reviewing this case of a condition by no means uncommon I have come to the conclusion that I erred unwittingly in allowing the patient to get up too soon. Although all signs of thrombosis had gone I have no doubt now that the process had not completely stopped, even though there was no clinical evidence of its presence.

Cambuslang. Thos. McCulloch, M.B., Ch.B.Glas.

Pulmonary embolism is such a very rare complication of childbirth that it seems scarcely ever thought of. Though Galabin gives a considerable space to it the last edition of Comyns Berkeley's *Midwifery* makes no mention of it at all. Perhaps, therefore, the following brief notes of a recent case in my practice may prove of interest.

A perfectly healthy, strong girl, aged 18, was delivered of a full-time living female child on September 6th, after an easy labour. There had been no intervention of any kind, and the baby and placenta were born before my arrival. The perineum was not torn, there was no more than the usual loss of blood, and the puerperium passed without incident. She got up, feeling perfectly well, on September 16th. The next day, about 7 p.m., she got up from her chair, picked up the baby, suddenly let it fall, fell herself to the floor, and died almost immediately.

No necropsy was performed, but I think the diagnosis of pulmonary embolism can hardly be doubted. Of all the predisposing causes given in Galabin, none were present in this case, and there was no reason to anticipate such a disaster. It would be of interest to know of any similar cases.

W. J. Young, M.R.C.S., L.R.C.P.

Harston, Cambridge.

PYLORIC STENOSIS IN BROTHERS.

In August, 1923, a male infant, aged 5 weeks, weighing 7 lb., was brought to the Royal Hospital, Richmond, suffering from persistent vomiting and wasting. After keeping the child under observation for two or three days I diagnosed pyloris stenosis, and operated on August 23rd. The pylorus was constricted, rather hard, and fibrotic. The pyloric canal was a quarter of an inch in diameter. I incised the pylorus longitudinally and sewed it vertically, but unfortunately the child was so wasted that it died thirty-six hours after operation. The mother was delivered of another son in July, 1924; the second child was brought to the hospital when three weeks old, quite obviously suffering from the same condition. As there was no doubt of the diagnosis, I operated on August 5th, when the child was twenty-four days old and weighed 7½ lb.

Operation.

On opening the abdomen, by a mid-line incision, the stomach was so enormously dilated that it literally blew out of the abdomen like a toy balloon. So thin appeared the structure of the stomach coats that the organ was almost transparent. The pylorus itself was spindle-shaped, about one and a half inches long and three-quarters to one inch wide; it was as hard as the tendo Achillis. The pyloric aperture would admit nothing more than a large probe. It seemed useless to perform Rammstedt's operation or a pyloroplasty, as I did not see how this could cure or even relieve the obstruction; I therefore decided to perform posterior gastro-jejunostomy as the only effective remedy, although a somewhat drastic one in so young a child. The operation took thirty-five minutes. Tincture of belladonna (1 minim) was given every four hours for a few days. The child vomited occasionally, but eventually made a good recovery. The weight increased by 2 or 3 ounces weekly during the three months it was in hospital. Subsequently the child has been admitted for slight vomiting attacks, which seemed to be due to some error in feeding. At the last visit to the hospital the stomach was *x*-rayed, and was seen on the screen to be acting perfectly. The patient is now 2 years old, well developed, and in every way a fine child.

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HERPES AND VARICELLA.

The following case is of interest in connexion with the alleged relation between herpes and varicella.

On March 21st my wife developed a very severe attack of unilateral herpes, affecting the neck and shoulder, which kept her in bed for a month. On April 5th my son, aged 9 years, was taken ill with chicken-pox, which ran a typical course. No outside source of infection could be traced.

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Kingston-upon-Thames.

case of rheumatoid arthritis (Still's disease) as a clinical entity with very definite signs, and he was not inclined to allow any chemical investigations to interfere, one way or the other, with his opinion. He was not prepared to accept Mr. Irwin's explanation of the fact that displacement of the head of the femur did not occur in the younger children. He thought the buffer-like action of the thick epiphyseal cartilage might be responsible, since in the femur, as in other bones, the displacement of the epiphysis usually occurred in older patients when ossification of the epiphysis was far advanced and the epiphyseal line was thin. The case of coxa vara shown by Mr. Irwin had supported his (Mr. Fairbank's) contention, as in the early radiogram shown there undoubtedly was a slight degree of displacement of the epiphysis. It was very difficult to indicate the age at which an attempt should be made to treat a pathological dislocation by arthrodesis, but he suggested 9 as the earliest age, and preferably later. In acute arthritis secondary to osteomyelitis of the femur he thought the surgeon should err on the side of opening the joint in a doubtful case. Drainage would do no harm if no tube was inserted inside the joint, and early drainage before there was any erosion would give a better result than waiting till definite changes had occurred. It had been stated that suppurative arthritis was rare in osteomyelitis. He agreed that this was so in the case of most bones and joints, but not at the upper end of the femur and the hip-joint. As to the sesamoid bone in the reflected head of the rectus, he thought there were two distinct situations in which a separate piece of bone was seen in the region of the upper acetabular lip. One, which he suggested might be the sesamoid, was near, but just inside, the upper or outer acetabular margin, while the other was outside that margin, apparently in the capsule. A woman, aged 42, showed bilateral congenital deformity of the acetabula with subluxated femora; she was suffering severely from arthritis of comparatively recent origin. The films showed a large lump of bone on each side, apparently in the capsule above the femur. Mr. Platt's method of teaching the probable cause of arthritis at various ages would be most helpful to the student. The acetabular disease to which he (the speaker) was referring was that type in which a tuberculous deposit was present in the bone beneath the acetabular cartilage, and so was extra-articular until it perforated into the joint; it was not that form in which superficial erosion of the joint surfaces appeared to be affecting the acetabulum rather than the femur. In the slide shown by Mr. Platt he ventured to suggest, although he had not, of course, had an opportunity of examining the films thoroughly, that the femur showed slight displacement upwards and outwards, that the case was one of primary synovial disease, with secondary erosion of the acetabulum, and was not essentially primary acetabular disease. These often showed surprisingly mild symptoms. He was glad Mr. Platt agreed with his suggestions as to arthritis deformans being secondary as a rule. He did not think the blood examination, as suggested by Mr. Todd, would be of any more use in the diagnosis of tuberculous coxitis than the Pirquet and other tests. He was afraid that they would have to treat these cases as tuberculous till the progress of time made the nature of the case clear. He had not found alteration of the plane of the epiphyseal line a cause of adolescent coxa vara. In this type his experience was that the epiphyseal line was in the normal plane.

Mr. Fairbank showed lantern slides of a case of acute streptococcal arthritis of the hip in a child aged 3, in which the head of the femur disappeared as a result of the suppuration, and was seen to be ossifying again seventeen months later. The shadow of the femoral head was even more obvious two and a half years after the onset of the arthritis.

OSTEO-ARTHRITIS OF THE HIP-JOINT TREATED BY VACCINES.

(With Special Plate.)

BY

H. WARREN CROWE, D.M., B.Ch.Oxon.,

HARROGATE.

There seem to be no records of any serious attempts to treat osteo-arthritis of the hip-joint by means of vaccines, and in fact medical opinion regards the disease as hopelessly incurable and progressive. It is certainly true that no medical treatment touches it—hydrology and massage are equally useless. There is often a great deal of pain, which most physicians would say was due to pressure on, or involvement of, nerve endings by bony changes in the joint.

Until a few years ago I had found myself in complete accord with these widely held views. Experience has led me to change my opinions. Osteo-arthritis of the hip-joint is not of necessity either incurable or progressive. The pain is not directly due to the bony change. The cases which follow are brought forward to prove these two contentions. Definite bony change was demonstrated by radiograms in every patient.

Case 1.—A labourer, aged 54, suffered for three years with pain in the left hip-joint; he was unable to sleep owing to the severity of the symptoms. Treatment by vaccines was started in November, 1923, and was continued steadily until the end of June, 1925. Although carrying on his daily work, he lost his pain and therewith his insomnia. Apart from a slight limp he now has no symptoms of any kind whatever. Of the first two radiographs, one was taken before and the other after treatment. There is hardly any difference; perhaps the bony changes are somewhat more sharply defined in the later photograph.

Case 2.—A woman, aged 62, had originally a fall on the right hip-joint, which was followed by intermittent pain; this had become much worse and had been very severe during the last four years. All the teeth had been removed at the age of 27. The patient was anaemic. Movement of the joint was fair, although abduction was limited and painful. This is a curious and atypical case (see Fig. 3). The disease has destroyed a circumscribed area of the head of the femur; operation would probably have revealed a cavity filled with granulation tissue. Treatment was carried on for some twelve months, when all symptoms had completely disappeared. There was no limitation of movement, no pain, no limp, and function was completely restored. Fig. 4 shows, however, that the condition of the hip-joint was but little altered.

Case 3.—A woman, aged 62, had phlebitis eight years ago, followed by a marked limp and extreme mental depression. The right hip was adducted and slightly flexed. There was no movement of abduction and only a small degree of flexion and extension; the apparent shortening was fully one inch. Treatment was started in August, 1923, and in December the patient wrote that the depression had all gone, there was much less pain, and she was able to walk better and farther, with no pain afterwards.

Case 4.—A woman, aged 57, began to notice three years ago that the hip-joint was "drawing in." The pain varied in intensity, massage made it worse, and walking was intensely painful, although the joint was movable to a very fair extent. There was a most distressing limp. Treatment began in November, 1921, and was carried on intermittently for twelve months. The symptoms entirely cleared up except for a slight limp, and the patient has remained well.

Case 5.—A man, aged 60, had, ten years previously, felt some pain in his right hip-joint, and also in his right knee-joint. The hip is at present in a position of slight flexion and adduction, with good compensation and one inch shortening. Treatment was begun in August, 1922. In April, 1923, the apparent condition of the joint was not changed, but compensation had still further improved. He was able to lace his shoes, work in his garden, and walk several miles.

Case 6.—A man, aged 48, began to get stabs of pain in the right groin two years ago; this gradually extended down the leg, and, when seen, he complained of sudden sharp "turns" which nearly threw him over. He had always been an athlete. Treatment was begun in June, 1924. In August, 1925, the report was: "Played four sets of tennis and one round of golf with no ill effects."

Case 7.—A doctor, aged 55, had had some pain and stiffness from time to time in the left hip-joint; abduction and flexion were painful. Treatment was started in April, 1925. In October he motored twenty-five miles, played seven sets of tennis, motored back, and never felt the leg at all.

Case 8.—A married woman, aged 55, had felt increasing pain in her right hip-joint for the last four years. Movement was found to be very limited; slight creaking was present in the knee-joints. After treatment from August to December, 1924, the symptoms cleared up.

Case 9.—A woman, aged 36. This was an extremely severe case of osteo-arthritis of both hips, with eight years' history. She became much worse after a recent pregnancy. Neither leg could be adducted, with the result that in attempting to walk the feet

of tropical medicine—the most virile, the most progressive, and the most valuable of all branches of medicine to a country with a great colonial empire. For this reason a discussion had been arranged between that Section and the Tropical Diseases Section on trypanosomiasis, a subject which the late Sir William Leishman had made peculiarly his own.

Sir Arbuthnot Lane joined with the president in paying tribute to Sir William Leishman, and looked to a great future for the Section of Comparative Medicine.

TUBERCULOSIS IN YOUNG GIRLS.

A meeting of the Manchester Medico-Chirurgical and Obstetric Society was held on October 13th, when a short address was read from the President (Sir Thomas Barlow) and Dr. N. C. Haring read a paper on the treatment of tuberculosis in young girls.

Dr. Haring said that he had little belief in any of the new and much advertised cures for consumption, but he was hopeful that something would result from the recent work of Professor Calmette of Paris, whose work was known all over the world, and whose laboratory was above reproach. As a result of many years of patient investigation in this country it had been stated that there were very few children who did not have some infection with the tubercle bacillus. It was possible that if the risk was not too great it might be beneficial for all children to be infected with tuberculosis in a mild form so that they might be spared the horrors of consumption in its ordinary and severe forms. Neither medicine nor surgery had done very much to cure consumption. When tuberculosis was cured it was more often cured by natural processes than by the treatment of the medical man who attended the case. It was true that abdominal tuberculosis was sometimes much improved by a simple laparotomy; it was also true that a broken down tuberculous gland in the neck required an operation, but on the whole the efforts of the surgeon were uncertain in their results. Fresh air, good food, cod-liver oil and malt, iron, and other tonics were the stand-by. The treatment by artificial pneumothorax was of undoubted value when only one lung was affected. The value of *x* rays in the diagnosis of tuberculous disease of the lungs was uncertain. If the result of the photograph was positive it was most useful, but if the plate showed no disease it was not certain that all was well. *X* rays were very useful in diagnosing enlargement of the mediastinal glands, and sometimes would show up abdominal tuberculosis, but not always. He urged practitioners to investigate every case of anaemia very closely, for he was convinced that the old type of chlorosis was rarely seen in these days, while the anaemia of consumption was becoming more and more common.

Dr. G. Chesney asked if it was worth while boiling the milk for young children if it was better for them to begin life with a mild attack of tuberculous infection.

Dr. Louise Aronovitch asked if it was safe to diagnose tubercle by a deficiency in the breath sounds combined with an *x*-ray photograph showing a slight abnormality in shaded areas.

Dr. J. C. Atherley asked how it was that some children had developed tuberculosis under apparently the most perfect conditions possible and without any hereditary taint or tendency.

Dr. Haring, in reply, said that all milk should be boiled, since no one could guarantee a mild infection. Diagnosis of tubercle based on deficient entry of air into the chest was unsafe. How exactly tuberculosis was caught was a matter for discussion, but the bacilli were ubiquitous, and infection was therefore possible everywhere, and under any conditions.

A prolonged discussion followed on the various methods of treatment which had been recommended.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

The seventy-first annual meeting of the West Kent Medico-Chirurgical Society was held at the Miller General Hospital, Greenwich, on October 8th, when Dr. H. Nockolds was elected president and Dr. C. J. B. Buchan honorary secretary. In the course of the clinical part of the meeting Mr. C. A. Joll showed cases illustrating abdominal surgery in women aged 58 and over. His cases included perforated gastric ulcer in a bilocular stomach, of which seven-eighths was removed by operation; gastric ulcer associated with chronic duodenal ulcer and gall stones; columnar-celled carcinoma of the ascending colon; caecostomy; cholecystectomy; and removal of the rectum by the abdomino-perineal route in a woman aged 62, who had mitral stenosis. Mr. P. B. Roth showed a girl, aged 9, with a crushed sixth cervical vertebra due to a cycle accident; torticollis had been produced at first, but was cured by massage. He showed also a girl with overgrowth of the radius in both forearms, involving considerable deformity but no loss of power, and a man with muscular wasting of the right hand, due to pressure on the brachial plexus from his having been accustomed to carry heavy planks of wood on his shoulders. Dr. H. Nockolds showed a boy with pseudo-hypertrophic muscular atrophy, and a woman, aged 59, who had not been abroad, but who had had elephantiasis of the right leg since the age of 19.

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High Blood Pressure.

On October 19th Sir Humphry Rolleston, Bt., M.D., read a paper on high blood pressure from the clinical aspect. The question particularly raised was whether or not a rise of blood pressure *per se*, apart from causal toxic factors or the resulting arterio-sclerosis, gives rise to symptoms of ill health. It was not an uncommon experience to detect blood pressure readings higher than the average in individuals who are entirely free from symptoms, and harm might result from too energetic measures adopted for lowering these pressures. Certain hypersensitive subjects, however, might conceivably manifest symptoms as the result of the heightened blood pressure alone. Libman had described a simple means of estimating the individual's response to afferent stimuli, and attributed angina sine dolore to the patient being hyposensitive. But to apply this explanation to high blood pressure would necessitate the assumption that in the early stages persons with high blood pressure were hyposensitive and became hypersensitive; possibly as high blood pressure was often due to protein derivatives, the hypertensive individual's nervous system might at some stage become sensitized by the protein bodies and so allow symptoms due solely to the high blood pressure to appear. On the other hand, some—for example, F. M. Allen—considered that high blood pressure was always due to underlying structural changes either of the kidney or of an arterio-sclerotic nature. Bordley and Baker showed by *post-mortem* findings that arteriolar sclerosis in the medulla oblongata was definitely associated with high blood pressure. But it was difficult to believe that such a change could underlie those cases in which a high pressure persists for years with no advance and without interference with health. The possibility of arterial spasm was also referred to in this connexion. Much interesting work done by Draper on the constitutional make-up of subjects of high blood pressure was mentioned. Finally the lecturer considered seriatim the various symptoms commonly associated with high pressure cases in their early stages and questioned whether or not these occurred in the absence of definite chemical or structural changes. The tendency to haemorrhage (epistaxis, intestinal, retinal, cerebral, etc.) was probably dependent, not on the pressure alone, but on vascular degeneration associated with it. Each common symptom was considered separately, and it was shown that probably each could be explained by the presence of some factor other than the rise of pressure.

In the paper and the discussion which followed it the importance of the distinction between the rise of pressure itself and the associated degenerative changes was emphasized.

STRANGULATED HERNIA IN AN INFANT.

The memorandum on strangulated hernia in infancy by Dr. Buckley in the Journal of September 18th (p. 525) recalls a similar case I had recently.

A male child (full time) was born with a right inguinal hernia which was easily reduced. The mother consulted me when the child was 19 days old because she could not get the swelling back as usual, and the child was continually crying. I failed to reduce the hernia with gentle manipulation, posture, etc. Later in the day I tried again, unsuccessfully, with light chloroform anaesthesia. By this time the swelling had become tense and tender, the pulse was rapid, and the temperature 99°, so I decided to operate in hospital. Under chloroform I opened up the sac, which contained dark fluid and about four inches of small intestine, barely viable. I divided the stricture, replaced the loop of bowel, and did a radical cure as quickly as possible. The skin wound was closed with Michel's clips, and no dressing was applied except daily dusting with pulv. acid. bor.; healed by first intention.

The child was kept on the breast and made an uneventful recovery.

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Reports of Societies.

ANATOMICAL FACTORS IN URINARY INFECTIONS.

Mr. W. Girling Ball read his presidential address at the meeting of the Section of Urology of the Royal Society of Medicine, at the society's house, on October 28th. The subject of his address was "Some anatomical factors in urinary infections."

In opening the subject, Mr. Girling Ball referred to the presumption that in all cases of urinary infection the presence of some pre-existing abnormality should be considered. Admitting that these were not always demonstrable, certain cases in which a long-standing diagnosis of pyelitis had been made were referred to and the existence of such factors was demonstrated. Recent experiments seemed to show that bacteria did not pass through a normal kidney and cause a persistent infection unless some causative factor existed. The speaker considered that it was not clear that irregularities of the action of the bowel were always present in cases of urinary infection, and pointed out how difficult it was to define an actual lesion of the intestine in these cases. He suggested that some obstructive lesion of the urinary tract, or some contact lesion between it and the intestinal tract, was more commonly present than might be anticipated. To support this, records were given of obstructive lesions of the urinary tract to show how commonly these were associated with urinary infections. It was also shown that the bacterial flora of the intestine were the most common micro-organisms of infection. A review was then made of intestinal diseases which were associated with urinary infections, including those associated with appendicitis, diverticulitis, intestinal fistulae, malignant growths of the intestine, and salpingitis, and the following conclusions were arrived at—namely: that adhesion and anatomical proximity of inflammatory lesions of the intestinal tract and pelvic viscera, although not common, occurred more frequently than was generally recognized; that although these lesions did occur, the symptoms of urinary diseases with the absence of urinary lesions occurred much more frequently. Many urinary infections of the chronic type might be dependent upon intestinal lesions which were adherent to some part of the urinary tract for considerable periods before the actual condition of affairs was shown by an acute flare-up of such a lesion; and it might be that more chronic infections of the urinary tract were due to this cause than was generally recognized. Although the haematogenous infection of the urinary tract was the course at present most generally recognized, it must not be assumed that this was the only method of infection; neither should it be considered that, in the event of contact between the two tracts, the direct infection was dependent upon this contact, for in some cases the adhesions between the two were responsible for obstruction to the urinary passages, which rendered the renal pelvis a suitable site for a haematogenous infection.

COMPARATIVE MEDICINE.

The first meeting of the session of the Comparative Medicine Section of the Royal Society of Medicine was held on October 27th, with the President, Sir D'Arcy Power, in the chair. Before reading his presidential address, the President paid a warm tribute to the late Sir William Leishman, the president-elect of the Section, and a resolution of sympathy with Lady Leishman was passed in silence.

Sir D'Arcy Power then read his presidential address. Mindful of his own limitations, he said, and acting on the advice of Apelles the Athenian, that a shoemaker ought not to criticize outside his trade, he had decided to speak about those who might have qualified for election to honorary membership of the Section of Comparative Medicine, and so give some idea of the origin of the Section. Like a river, medicine had a common source in natural history; it divided into two streams of human and veterinary medicine—both empirical—and reunited to form comparative medicine, which it was the business of the Section to maintain and to place on a scientific footing. The first to be considered as president, that was if he was not elected patron, would be Hippocrates, whose keen intellect recognized that the diseases of man and animals were very closely allied. Aristotle, the "Master of all who know," would at once have joined and have taught us much that was long forgotten and was only now being re-discovered. The first candidate for honorary membership, however, would undoubtedly be Mago, the Carthaginian, the "Father of agriculture," whose twenty-eight volumes on the subject had been translated into Latin and Greek. Xenophon, who had a very real and a very modern interest in horses, would have been a member, and so also would have been Vegetius, who was far in advance of his time, and who, ridiculing the idea of disease being evidence of divine wrath, advised the deep burying of dead animals. Pliny, who took all knowledge for his province, would also have been a member, and with him would have joined Celsus, a writer about whom it was still disputed whether he was practising physician, veterinary surgeon, or merely a literary Roman gentleman with scientific aspirations.

Leaving the ancients, Conrad Gesner, whose *Historiae Animalium* dealt at large with the diseases and habits of animals, would surely have been admitted. The next on the list would have been Gervase Markham, who, however, might have been blackballed, for Sir Frederick Smith said of him, that he knew nothing of his subject, and was not only a mean plagiarist, but a violently untruthful person! Robert Lovell would certainly have been admitted because of his *Compleat History of Animals and Minerals*, even though his book was a mere restatement of the learning of classical times and might well have been written in the Bodleian. John Hunter would surely have been elected first president had his times been ripe for inaugurating the Section, and he would as certainly have enlisted the assistance of Astley Cooper, the elder Cline, William Simmons, Edward Jenner, and Munro secundus, while Sainbel, the first principal of the veterinary college in London, would at least have attended the meetings. In our own times, Parker and his great expositor, Thomas Huxley, would have been members.

It thus came about that, by a gradual process of development, a society for the study of comparative pathology became possible. The Section owed much to Clifford Allbutt and Sims Woodhead, who wished to start such a society at Cambridge many years ago. However, no active spirit had come forward then, and it was not until the veterinary side of the profession became active that the Section became possible—possible also in a wider sense than had been originally planned, for it became comparative medicine instead of comparative pathology. The experiment was proving a great success. The work embraced a vast field, extending on the one side to the most difficult problems of human medicine, and on the other to the interrelation of human and veterinary medicine, showing thereby that the processes of disease, whether in man or in animals, were identical. Its world, too, touched the confines

RECENT PHYSIOLOGY.

It is not surprising that Professor Lovatt Evans's *Recent Advances in Physiology*,[3] which was reviewed in these columns on January 9th last (p. 57), has so rapidly passed into a second edition. The preface to the first edition is dated August, 1925, but since then more recent advances have necessitated additions to what the author modestly but appropriately calls "an elementary textbook of advanced physiology." Thus the work of C. R. Harington on thyroxin, and of Best, Dale, Hoet, and Marks on insulin, have rendered obsolete what was so recently believed. J. J. Abel's isolation of insulin in a crystalline form is mentioned; and it is considered that if it is a peptide, two of the most likely component amino-acids are histidine and cysteine. Other additions and alterations have been made—for example, attention is directed to Anrep and Segall's experimental work, which modifies Marey's law so that now in addition to a reflex from the heart through the vagi the influence of raised blood pressure on the cardio-inhibitory centre must be taken into account in the production of the slowing of the pulse rate as the result of a rise in blood pressure. The section on muscular contraction has been expanded, and in the interesting account of the capillary circulation Florey and Carleton's contention that the motor activities are due to the endothelial elements of the capillaries, and not to Rouget's cells, is mentioned.

That a work of this kind is essential to a scientific physician who wishes to keep in touch with the ever-advancing and shifting knowledge of the fundamental science of physiology cannot be questioned.

MAKING TERMS WITH TUBERCLE.

A popular book such as *Diseases of Animals in Relation to Man*,[4] just added to the series of "Modern Health Books" edited by Professor D. Fraser Harris, was wanted, and he is to be congratulated on the writer he selected. It would have been easy to turn out a couple of hundred small pages of rhetoric and error, mingled with abuse of persons concerned with the preservation of the public health. Instead the choice fell on Dr. T. W. M. Cameron of the London School of Hygiene and Tropical Medicine, who knows the subject from A to Z, understands the relative importance of things, and has the command of a simple clear style. He begins with two chapters on tuberculosis, and a better presentation of the present position of the subject is not anywhere to be found. Dr. Cameron is a veterinary practitioner, but thoroughly understands the problem on the human side, and does not hesitate frankly to explain how much the best pathological and epidemiological opinion has changed during the last few years. After describing bovine tuberculosis and its relation to human, he has the courage to write, "The more widely spread tuberculosis is in a community, the smaller is the case mortality," and to quote with approval the dictum of an Italian worker, "Where there is much tuberculosis in animals, there is little in men." The argument is that, if we were successful in completely eradicating tuberculosis from man and animal in Britain we should be a highly susceptible race, and in order that the future tubercle-free generation should be safe it would be necessary to achieve this "throughout the whole world, or else prevent communication with all other lands where tuberculosis exists." Dr. Cameron's conclusion is that our efforts towards eradicating the disease as a cause of death must be directed to "our being thoroughly, and completely, and benignly tuberculized." Everyone will not be prepared to accept this view, but the author at any rate leaves us in no doubt about his opinion, to which much weight must be attached.

The chapter on rabies is excellent, well informed, and temperate; the same is true of the next, on small-pox and cow-pox. Then come short accounts of various diseases common to, or supposed, sometimes erroneously, to be common to, man and animals, a chapter on milk which is a model of condensation and good sense, and another on meat poisoning, short but good.

Dr. Cameron has produced an excellent book, one which members of public health authorities ought all to study, and one which should be in the offices of newspapers that do not wish to be swept away by every wind of sensationalism.

THE EARLY HISTORY AND ANTIQUITIES OF MACEDONIA, THRACE, AND ILLYRIA.

Those who served during the war with the Salonika Army, the Army of the Black Sea, and on the Gallipoli Peninsula (the Thracian Chersonese), and who take an interest in the antiquities and ancient history of the areas over which military operations were conducted, will read with pleasure a book that has been published recently on Macedonia, Thrace, and Illyria in their relations to Greece from the earliest times down to the time of Philip of Macedon, son of Amyntas III and father of Alexander the Great.[5] The author, Stanley Casson, is university lecturer in classical archaeology at Oxford, and was sometime assistant director of the British School at Athens. It will be remembered that representatives of the school were attached to the Salonika Army during the war, and that antiquities unearthed during digging of trenches and other military constructions were carefully collected by them. Mr. Casson had visited Salonika in 1913 and 1914, and during the war, between March, 1916, and December, 1918, saw most of Macedonia from the Vardar to the Struma. Subsequently, down to April, 1919, he was in Constantinople, and became acquainted with the country round the Bosphorus, and in later years journeyed throughout Macedonia and Thrace, the Gallipoli Peninsula, Dalmatia, and Montenegro.

In the first part of his volume he gives an account of the geography of Macedonia and Thrace, their natural resources, especially the mining industries, known to the ancients, and the grouping of their cities. There are interesting descriptions and illustrations of those well known features in the country round Salonika, the Macedonian tumuli, and of the antiquities found in excavations and caves in the Balkans. Several of the "finds" were collected by the British Salonika Force in 1915-16, and were presented by the Greek Government to the British Museum after the armistice. Illustrations and descriptions of some prehistoric Thracian weapons, including the Μάχαιρα, which is not unlike some of the weapons which could be seen in the Salonika bazaars, and a list of sites where excavations have been made, are appended to a chapter on prehistoric periods. Chapters on the kings and chieftains of Macedonia and Thrace, on the Thracian Chersonese, and on art during the sixth to the fourth century B.C., are full of interesting and scholarly historical research. Appendices to Part I of the volume contain a map and description of Ainos, the modern Enos, at the mouth of the Maritza. Ainos was an important seaport for the trade of Thrace and of the districts beyond Adrianople as far as the Black Sea. An underground church there is regarded by Mr. Casson to have been in ancient times a shrine for the worship of Pan, a form of worship unusual among the Thracians. Another appendix indicates the sources available for the study of the earlier history of Thrace and Macedonia.

Part II of the volume is a brief description of the ancient roads, antiquities, and Greek settlements in Illyria, the territory between Serbia and the Adriatic. The evidence regarding ancient times is meagre, and it was of minor importance in early history; but, according to the author, its story is indisputably bound up with that of Macedonia.

A list of the museums where collections of North Aegean antiquities are to be seen is given in the preface; and at the end of the volume there is a numbered list of finds of the Neolithic, Bronze and Copper, and Iron Ages, with corresponding numbers plotted on a map, showing the places where each was found. The volume also contains an extensive bibliography, and a list of British and foreign maps of the areas with which it deals.

[3] *Recent Advances in Physiology.* By C. Lovatt Evans, D.Sc.Lond., M.R.C.S., L.R.C.P., F.R.S. Second edition. London: J. and A. Churchill. 1925. (Post 8vo, pp. xiii + 370; 70 figures. 12s. 6d. net.)

[4] *Diseases of Animals in Relation to Man.* By Thomas W. M. Cameron, M.A., B.Sc., Ph.D., M.R.C.V.S. London: Faber and Gwyer, Ltd., the Scientific Press. 1926. (Fcap 8vo, pp. 222; 13 figures. 3s. 6d. net.)

[5] *Macedonia, Thrace, and Illyria: Their relations to Greece from the earliest times down to the time of Philip, son of Amyntas.* By Stanley Casson, M.A. London: H. Milford, Oxford University Press. 1926. (Med 8vo, pp. xxi + 357; 106 plates, 18 maps. 21s. net.)

Reviews.

A TREATISE ON SOCIAL HYGIENE.

The first volume of a German handbook of social hygiene and the care of health,[1] edited by Gottstein, Schlossmann, and Teleky, suggests a subject for discussion—namely, whether there really is any advantage in such joint undertakings over independent ventures; any advantage, we mean, from the point of view of the student. Such textbooks as Osler's *Medicine*, the material of which has been moulded by a single intellect, are wholes; they bear the stamp of one personality. This is less true, even of so carefully edited a work as Allbutt and Rolleston's *System of Medicine*, and not true at all of the new French treatise on medicine, the forty fascicules of which will really constitute a medical encyclopaedia without alphabetical arrangement. The scale upon which the book before us is planned—the first volume contains 511 large pages, and five more volumes are announced—ranges it with the encyclopaedic class. Ventures of this kind are more often undertaken in France and Germany than in England. Were they chiefly of German origin we might perhaps explain it by supposing that the more docile German student is glad to be saved the trouble of choosing an "authority" for himself. But actually French works on this scale are almost as numerous. Perhaps the only strong argument in favour of the method is that an expert who has it in him to write a good treatise may be more readily induced to take part in a co-operative work than to publish independently. If we compare French and German treatises it is usually said, and truly said, that the former are better written but the latter take more heed of work done outside the writer's own country. The explanation of the undoubted superiority of French books over German treatises in the art of writing is not, we think, any inherent superiority of French over German as an instrument of precision—Heine's prose illustrates how beautifully German can be written—but the fact, noted in Mr. Flexner's recent study of medical education in Europe, that Frenchmen are made to take pains to write French, while Germans have very little more respect for their mother tongue than most of us have for ours.

The first article in this *Handbuch* is by Hueppe; it affords a good illustration of what has been said. Many sentences must be read more than once by a foreigner moderately well acquainted with German before he grasps the meaning, and with one sentence we have succeeded in puzzling a German. Some of the facts—the article is an account of the history of social hygiene—will be new to most readers, but the whole produces no clear impression. The second article, on statistical methods, by Weinberg, is much more satisfactory; it is a clearly written account covering a good deal of ground and using no more mathematics than is indispensable. It would not have been human if the author had not given rather more space to his own work than the impartial critic might think it needed. But as this work, particularly with reference to the fallacies of selection and how to avoid them, is really important, it is well that it should be clearly described. Weinberg was one of the first statisticians to maintain that Karl Pearson's demonstration of a greater liability of first-born children to various abnormalities was fallacious, a position subsequently taken up by Yule and Greenwood in this country. Pearson replied to their arguments in 1914, and, as generally happens, all the parties to the discussion remain of their original opinions. Weinberg puts his side of the case quite clearly. The next article, by Prinzing, is a short but quite satisfactory account of the principal data of medical statistics. The essay which follows is by Valentin Haecker on heredity. It is fully documented and quite easy reading, for the author eschews the technicalities of modern Mendelism, which are almost as provocative of headaches as even skew variation and multiple regression.

The longest section is devoted to tuberculosis, and the conclusion to which it leads the reviewer is that, in spite of all that has been done and written in the last twenty-five years, we really know practically nothing of importance about the constitutional factors, if any, of tuberculosis, so that both those who proclaim that there is *no* problem of inheritance in tuberculosis and those who assert that an inheritance of soil is almost everything and variations of exposure to infection of trifling importance are merely darkening counsel. Indeed, the whole modern history of opinion upon the general etiology of tuberculosis is somewhat humiliating, for, without any real additions to our stock of positive knowledge, there have been violent changes of fashion in opinion. Clinicians, biometricians, biologists, and economists have never hesitated to form (and publish) conclusions which not one of them had really sufficient knowledge to enable him to test.

The next chapter, by the late Professor Martin, on school anthropometry, is chiefly descriptive of technique and seems to be exhaustive. Martin Vogel deals with popular education in hygiene and includes a useful summary of methods employed in other countries; he is very appreciative of Sir George Newman's memorandum on public education in health. This article is long, but it covers a wide field. Grotjahn's account of the education of the medical student shows that, at least in some German universities, hygiene as a branch of the ordinary curriculum is more seriously considered than in this country. Both in Munich and Berlin it would appear that there is a much better provision for the instruction of such students and graduates as wish to learn than we shall have in London until the new School of Hygiene opens its doors. The programme of the department of social hygiene at Berlin originally formed in the Hygienic Institute of the university by Flügge is very attractive. The seminar system is undoubtedly far more satisfactory for real students than being lectured at even by eloquent lecturers.

The remaining sections, by Dietrich and Krautwig, on organization of health measures, are rather more interesting to German physicians and hygienists than to foreigners, but will be of value to those of us who wish for detailed information respecting present German law and practice.

On the whole we should say that this is a sound treatise. It has no literary charm, but, with one exception, the articles are clearly written, and all are, we think, technically adequate. For some time to come it will be a useful work of reference.

[1] *Handbuch der Sozialen Hygiene und Gesundheitsfürsorge.* Herausgegeben von A. Gottstein, A. Schlossmann, und L. Teleky. Erster Band: Grundlagen und Methoden. Berlin: Julius Springer. 1925. (Sup. roy. 8vo, pp. xi + 511. G.M. 30; bound, G.M. 35.)

PSYCHOTHERAPY.

Psychotherapy,[2] by Dr. Edward Wyllys Taylor, James Jackson Putnam Professor of Neurology in Harvard University, is one of the volumes of the "Harvard Health Talks." The book is the substance of a lecture given at the Harvard Club, and in a compact form the writer has managed to convey an eminently readable account of the treatment of disease by mental means from the beginnings of communal life to the present day.

At the conclusion of his lecture Dr. Taylor expresses the view that the future of psychotherapy, halting as its progress has been, is now assured. He points out, however, that if this mode of treatment is to advance along rational lines it must remain essentially in the hands of the medical profession, from which, so he believes, it already shows signs of passing. It would be regrettable if this were to happen, since in view of the wide incidence of mental disorder in the community it is essential that the medical practitioner should be in a position to apply psychotherapeutic methods where they are indicated, and to this end, as Dr. Taylor observes, subjects dealing with the mind should be given equal importance with those dealing with the body in the pre-medical as well as in the medical course. Unfortunately, as far as this country is concerned, insufficient attention is still given to mental disorders and their treatment in the medical curriculum, though the creation of out-patient clinics for psychiatric cases in the majority of teaching hospitals has done something to remedy this deficiency.

[2] *Psychotherapy: Mental Elements in the Treatment of Disease.* By Edward Wyllys Taylor. Harvard Health Talks, 14. Cambridge: Harvard University Press; London: H. Milford, Oxford University Press. 1926. (Fcap. 8vo, pp. 53. 4s. 6d. net.)

British Medical Journal.

SATURDAY, NOVEMBER 6TH, 1926.

THE SIGNIFICANCE OF ANATOMY.

Thomas Vicary, Serjeant-Surgeon to four English sovereigns and to Philip of Spain, and four times Master of the Company of Barbers and Surgeons of London, would hardly have appreciated the lecture delivered in his memory by Professor Elliot Smith, of which we publish a report in the opening pages of this issue. The lecturer, with becoming candour, declined to flatter the eponym of the endowment under the auspices of which he spoke, but admitted that Vicary was even behind his own times and his book a mere plagiarism of the authors whose works had been discredited by the new knowledge of Vesalius. We venture to think that he would also have been puzzled by the views set by the lecturer before his audience. In some ways Professor Elliot Smith's lecture may be taken as an elaboration of the theme upon which Sir John Rose Bradford spoke so well and wisely in his Harveian Oration, for he makes—although not in so many words—a well supported claim upon medicine as a debtor to anatomy. If we adopt the lecturer's view that anatomy includes physiology, morphology, and morbid anatomy, and that morphology is the foundation of all science, then indeed the claim may be considered to be triumphantly established, and morphology should be enthroned in the highest place of the scientific Olympus, instead of being, as he complains, depreciated by physiologists, clinicians, and biologists, and even by some anatomists.

It is right and proper that a distinguished man of science, such as Professor Elliot Smith, should be enthusiastic in magnifying the importance of those branches of knowledge with which he has been and is so conspicuously concerned, and the opinions he has expressed deserve the closest attention and study and the deepest respect. Many who are not specialists in descriptive anatomy are apt to regard it as an indispensable but unprogressive branch of knowledge—a valuable and standardized tool of the physician, and still more of the surgeon, which has reached such a degree of perfection, as compared with other departments of medical study, that little further change is likely to be made in it. But to Professor Elliot Smith it is almost infinitely greater than this. More than thirty centuries before Aristotle, he says, the study of mankind (and in particular the phenomena of life and death) was the sole aim of all science and art, and no innate curiosity exists in mankind to study the forces of nature except in so far as they affect his own obvious interests, so that the moon was only watched on account of its apparent connexion with the reproductive system of the female, as shown in the periodicity of the observed phenomena. Yet it might be supposed that to dwellers near the sea or the estuaries of great rivers the phenomena of the tides, and the synchronism of springs and neaps with the phases of the moon, must early have excited a curiosity quite unconnected with any questions of human life and fate. Whatever may have been the case in Egypt, where the study of the viscera seems to have had so great an importance, we venture to think that many anthropologists will hesitate to admit that, in other and more primitive civilizations, considerations less anthropocentric had not their influence, and that it is too much to claim that "civilization was evolved out of man's endeavours to understand the constitution of his own body and to preserve the life that animated it." Self-preservation was doubtless the moving power in all primitive communities, but magic, which played such a great part in the beliefs and life of the savage, was surely concerned at least as much with the phenomena of outside nature as with the real or supposed construction of his body. Our knowledge of Egyptian civilization, of which we owe so much to Professor Elliot Smith, goes back a long way, but who can doubt that between the Neolithic culture and such an advanced organization as the Egypt of five millenniums ago there must have been many successive cultures that have been wiped out and have left no intelligible message for us? In what manner and from what point of view each of them envisaged the eternal problem of how and why and whither, we know not.

If some of the opinions expressed by Professor Elliot Smith invite criticism, there can be no doubt of the value of his remonstrance against any neglect of morphology as an aid to investigation, in which it ought to go hand in hand with physiology. He wisely cautions us against putting our trust so greatly in experiment as to neglect the evidence that can be given by the study of form in organisms of all sorts and the lessons that may be learnt by the comparison of a whole series of homologous parts from the simplest to the most complex known to us. In the great physiological collection in the Museum at Lincoln's Inn Fields comparative anatomy has many lessons to teach to those who can and will learn them. Function is of the greatest importance to the physiologist and anatomist.

Perhaps not the least interesting portion of the lecture was the historical sketch of the part played by anatomy (using the word in Professor Elliot Smith's widest sense) in the history of medicine and surgery. Harvey was primarily an anatomist. Sharpey, who invented the modern methods of practical physiology, insisted on retaining microscopical anatomy as part of that subject, and so, as Professor Elliot Smith maintains, crippled anatomical research, by depriving anatomy of the use of the experimental method and separating the investigators of structure from those of function. The brilliancy and extent of John Hunter's work has prevented a due appreciation of that of his great brother William, and their remarkable joint work on the lymphatic system has not had the appreciation it deserves. Charles Darwin based his own work on comparative anatomy, and himself wrote that morphology is the soul of natural history.

Even now questions as to the sympathetic system and the existence in man of differentiated muscle fibres, and their innervation, are the subjects of discussion and difference of opinion between physiologists and surgeons. Still more anatomical studies are necessary before the truth can be ascertained. Many other instances of the need of anatomical investigation were given by the lecturer, whose hopes of future progress are neither faint nor faltering. His appeal to the Council of the Royal College of Surgeons to modify the primary examination for the Fellowship in the direction of demanding a greater knowledge of comparative anatomy and morphology will be received with mixed feelings by those unfortunates who are

The main portion of the book is founded on an essay awarded the Connington Prize for 1924, and its purpose is to set forth the chief evidence available for the reconstruction of the earlier history of the North Aegean coastline and its hinterland. The volume is illustrated by excellent photographs, some of them reproducing beautiful views of places in the Near East.

THE SIGMOIDOSCOPE.

The small book on the endoscopy of the rectum and colon by Dr. Bensaude, a second edition[6] of which has just reached us, contains a very complete description of the sigmoidoscope and its use in the differential diagnosis of diseases of the rectum and colon. Valuable practical hints on the choice of instruments, the preparation of the patient, and the technique of examination are followed by a well illustrated account of the normal appearances of the bowel at different levels.

The diseases of the rectum are dealt with on a plan which comprises a good description of the pathological anatomy of each morbid condition, illustrated by numerous black-and-white drawings, and the sigmoidoscopic appearances are then shown in a series of colour plates which most successfully and faithfully reproduce what is actually seen. A special feature of the colour plates, which are certainly above the average both in execution and variety, is the polyglot description attached to each of them, for no fewer than six European languages are employed to explain each picture; French naturally takes pride of place, with English second, followed by Italian, German, Spanish, and Portuguese.

NOTES ON BOOKS.

The medical practitioner at home, whether he has lived abroad or not, is frequently asked for his opinion and advice by those who are proceeding to the Colonies either for a trip or to take up some appointment. The absence of any small work dealing with the numerous points involved has led to the promulgation of all sorts of information, some of it fantastic, much of it erroneous, a little of it correct. Dr. Balfour Kirk's book of *Hints on Equipment and Health*[7] fulfils to a nicety the requirements of the European about to venture trade abroad. It is small and inexpensive, and, though not intended strictly for medical men, will be read by them with advantage. It consists of a series of letters, giving just the kind of information which the layman wants and needs. With the exception of a few points on first aid, medical matters, *sensu stricto*, are rightly left alone. One of the greatest bores, and the most noxious which it is the lot of most professional men to encounter, is the layman with a smattering of so-called medical knowledge. Here we have a common-sense view of the dangers of tropical residence and of the means of forestalling them; advice as regards vaccination against small-pox and the enterica group prior to sailing; recommendations as to outfit, both for children and adults, and the domestic medicine chest. The questions of personal hygiene, diet, and drink, its use and abuse, exercise, recreation and fatigue, the advantages of an agreeable hobby, and the need for rest—all are dealt with. Sanitation, including not only personal hygiene, but also domestic matters which have to be supervised by the European if his house is to be comfortable and himself and his belongings kept free from disease—such matters, for instance, as cleanliness of quarters, mosquito-proofing of rooms, mosquito nets, the taking of quinine, disposal of refuse, exclusion of flies, and so on—all receive attention, adequate but not too elaborate. The letters are written in a vein of sound common sense, with witty turns of expression, and the advice given is such as will be strongly endorsed by everyone who, by hard-won personal experience of life in tropical countries, has learned the lessons which are here conveyed so clearly. The author is to be congratulated on the success with which he has performed his undertaking; the book should, and probably will, become part of the equipment of each intending traveller to the tropics. We can only wonder at the space it will occupy having been so long unfilled.

[6] *Traité d'Endoscopie Recto-Colique: Rectoscopie Sigmoïdoscopie.* Par le Dr. R. Bensaude. Deuxième édition. Paris: Masson et Cie. 1926. (Imp. 8vo, pp. 180; 115 figures in the text, 99 figures on 25 plates. 100 fr.)

[7] *Hints on Equipment and Health for Intending Residents in the Tropics.* By J. Balfour Kirk, M.B., Ch.B.Ed., D.P.H.Oxon., D.T.M. and H.Eng. London: Baillière, Tindall and Cox. 1926. (4¾ × 7, pp. vii + 120. 3s. 6d. net.)

The fasciculus on the genus *Amblyomma* forms the first part of the second volume of Nuttall, Warburton, and Robinson's monograph on the ticks.[8] Although not so rich in species parasitic in man as some of its congeners, the genus *Amblyomma* is the largest in point of numbers of the genera of ticks. It contains four species which have been recorded from human beings. One of these species is a carrier of Rocky Mountain spotted fever, and another has been described as "the greatest pest to man" in Jamaica. Many of the species are parasitic on mammals—including the vector of "heartwater"—but the range of hosts is large, although, curiously enough, no species has been recorded from birds. Geographically also the range is large, although, excepting a single species in Spain, none have been found in Europe. This part, written by Dr. L. E. Robinson, maintains the high standard set in previous parts of the monograph. It is well illustrated—there are in the text over 130 excellently drawn figures, of which 120 are original. Each of the 86 species is described in detail. There is an extensive host-list, a bibliography, an index, and an appendix on the biology of the genus. Dr. Robinson has contributed an immense amount of labour and patience to the making of this part of the monograph, and he has rendered yeoman service to a branch of entomology in which there is much still to learn. He has made available for entomologists throughout the world a volume which has long been awaited, and which, for once, proves that realization may be better than anticipation.

The book on radium treatment of cancer,[9] by Dr. Simone Laborde, director of the Radium Laboratory at the Anticancer Centre at Villejuif, consists of four parts. In the first the author discusses the physical properties of radio-active substances in general and those of radium in particular. The second part serves as an introduction to the study of cancer, including its clinical aspects and diagnosis by laboratory methods. In the third part a description is given of the sensitiveness of healthy and neoplastic tissues respectively to radium. The fourth part, which forms the bulk of the volume, deals with the technique of the radium treatment of the various localizations of cancer. The last two chapters are devoted to the complications observed during radium therapy and the accidents that may be caused by the manipulation of radio-active substances, with the precautions to be taken to avoid them. An extensive bibliography is appended. The book, which is essentially practical, will not only appeal to the specialist, but will furnish the general practitioner with a valuable guide to the study of the radium treatment of malignant disease.

The publishers of Wheatley's authoritative edition of the Diary of Samuel Pepys have now issued in one volume an abridgement of the complete copyright text, with the title *Everybody's Pepys*.[10] The abridgement has been judiciously carried out by Mr. O. F. Morshead with an eye to the tastes and interests of the ordinary reader. The printing is excellent, and the volume is adorned with a large number of cheerful illustrations by Mr. Ernest H. Shepard, whose delicate humour in black and white is well known to readers of *Punch*. The insides of the back and front covers are appropriately decorated with maps of London in the sixteen-sixties, showing the districts east and west of Whitefriars, and the River Thames from Whitehall to Richmond, and eastwards by London Bridge. A jollier gift book it would be hard to find.

[8] *The Genus Amblyomma.* By L. E. Robinson, Ph.D.Cantab., A.R.C.Sc. Lond. Being Part IV commencing Vol. II of Ticks: A Monograph of the Ixodoidea. By George H. F. Nuttall, F.R.S., C. Warburton, and L. E. Robinson. London: Cambridge University Press; London: H. K. Lewis and Co., Ltd. 1926. (Cr. 4to, pp. xii + 302; 8 plates, 130 figures. 20s. net.)

[9] *La Curiethérapie des cancers.* By Simone Laborde. Paris: Masson et Cie. 1925. (Med. 8vo, pp. xi + 333; 43 figures. 27 fr.)

[10] *Everybody's Pepys: The Diary of Samuel Pepys, 1660-1669.* Abridged from the Complete Copyright Text and edited by O. F. Morshead. London: G. Bell and Sons. 1926. (Cr. 8vo, pp. xxiv + 570; 60 illustrations. 10s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Zorbo Joint Jackets.

Messrs. Robert Bailey and Son, Ltd., of Marriott Street Mills, Stockport, and Sentinel House, Southampton Row, W.C.1, manufacture a dressing for joints entitled "Zorbo joint jackets." The dressing consists of a shaped pad of cotton-wool in a gauze covering, to which are attached tape straps and small buckles. The pad can be impregnated with lotion or liniment prescribed by the doctor, and is easily applied by the patient to the affected joint. It is claimed that the pad is useful in the treatment of sciatica and rheumatism; and there is no doubt that the shaping of the pad renders evenness of application easy. The joint jackets are made in six shapes: for the chest, the shoulder, the elbow, the wrist, the knee, and the groin.

THE BEIT MEMORIAL FELLOWSHIPS.

We mentioned last week that the trustees of the Beit Memorial Fellowships for Medical Research are about to appoint a Fellow to devote his whole time to research in tropical medicine, and an advertisement of the terms and conditions will be found elsewhere in this issue. The fellowships were founded and endowed in December, 1909, by Sir Otto Beit, as a memorial to his brother Mr. Alfred Beit, to promote the advancement by research of medicine and the allied sciences in their relation to medicine. The general policy for the administration of the foundation was settled by a board of trustees, which consisted of men of affairs and representatives of medicine and the allied sciences. The trustees act under the guidance of an advisory board consisting of Dr. William Bulloch, F.R.S., Professor T. R. Elliott, F.R.S., Sir James K. Fowler, K.C.V.O., M.D., Sir F. Gowland Hopkins, F.R.S., Dr. C. J. Martin, F.R.S., Sir Charles S. Sherrington, G.B.E., M.D., F.R.S., and Professor E. H. Starling, M.D., F.R.S. There have hitherto been three classes of fellowships—junior fellowships of £350 a year, usually held for three years; fourth year fellowships of £400 a year, to which a junior Fellow may be appointed; and senior fellowships of £600 a year, usually held for three years. A senior Fellow must have been first elected to the junior fellowship on or after January 1st, 1920. The election of Fellows takes place in July, and applications from candidates must be received on or before the first day of June preceding the election. The fellowships are open to persons of European descent without restriction as to nationality. All the facts necessary to be known by a candidate are set out in the book of regulations, which can be obtained from the honorary secretary, Sir James K. Fowler, 35, Clarges Street, London, W.1. To the new issue of this book has been added for the first time an account of the after-histories of those who have held a fellowship since the foundation in 1910. During the four years of the war very few appointments were made, and nearly all the Fellows resigned to undertake war work of more immediate importance. The real purpose of the trust is to help young men and women who show promise of being capable of doing good research work in their early fertile years, before, as is almost inevitable, they settle down in teaching appointments and become involved in administrative duties. The list of Fellows shows how widely the trustees have cast their net and some of the big fish they have caught. The first name is that of Sir Thomas Lewis, F.R.S., who held a fellowship from 1910 to 1913 for the study of irregularities of the heart. The second is that of G. C. McKay Mathison, M.D.Melbourne, who was investigating the nervous control of respiration; he died in 1915 of wounds received at Gallipoli. Another name on this page is that of Dr. Sidney Russ, professor of physics, Middlesex Hospital Medical School, who was appointed in 1910 to study the association of radio-activity with cancer, a subject to which he has since made many valuable contributions. Two other names early on the list are those of Dr. Edward Mellanby, now professor of pharmacology in the University of Sheffield, and of Dr. T. R. Elliott, F.R.S., professor of medicine in the University of London and head of the Medical Unit of University College Hospital, who in 1911 was appointed to make researches into the pathological changes in the suprarenal glands. The first woman's name to appear is that of Miss Ida Smedley (now Mrs. Hugh Maclean), who was a Fellow for four years and investigated the processes involved in the formation of fat in the organism. The names of many other well known workers are contained in the list; it already possesses historical interest, which will be greatly increased as time goes on if the list is maintained, as is to be expected, from year to year. It may be added that in its selection of Fellows in the past the trustees have not failed to encourage the study of tropical medicine; for instance, one of the first Fellows was Dr. Hindle, who was appointed to investigate the morphology and treatment of protozoic blood parasites, and there have been a good many other appointments since. The new appointment of a special fellowship in tropical medicine will be made for five years, and the salary will be £1,000 a year; in addition passage money out and home, if the research is conducted in the tropics, will be paid, and a grant will be made for laboratory expenses. Applications for this tropical fellowship must be received by the Honorary Secretary on or before February 1st next, but candidates resident in Australia and New Zealand can obtain a form of application from the registrar of their university.

BACTERIAL ENDOCARDITIS.

The war was responsible for many infections, and among them chronic bacterial endocarditis, also called endocarditis lenta, which came more prominently into notice, and has been specially studied by Lewis, Cotton, Horder, H. J. Starling, and others in this country. Before the war Osler and Libman in America were foremost in defining its clinical and pathological features. As has been already mentioned in our columns (1926, i, 749) in connexion with Sir Thomas Horder's Lumleian Lectures on endocarditis, Professor W. S. Thayer[1] has recently published an elaborate monograph on bacterial (infective) endocarditis, and analysed 362 cases of acute and subacute endocarditis examined after death at the Johns Hopkins Hospital during the thirty-four years and a half ending on January 1st, 1924. Bacteriological examinations were made before or after death, or both, in 241, or 66.6 per cent., and the nature of the bacterial infection was determined in 130, or 36 per cent., of the total 362 cases, streptococci heading the list with 60, *Staphylococcus aureus* and the pneumococcus with 26 each coming next; the gonococcus with 19 was the only other micro-organism in double figures. A table of 212 cases obtained by combining the figures given by Harbitz, Lenhartz, Horder, and Clawson shows the streptococcus in 62 per cent., the pneumococcus in 17 per cent., the *Staphylococcus aureus* in 14 per cent., and the gonococcus in 3 per cent. The relatively large number of gonococcal cases in the Baltimore series is explained by the inclusion of negroes, among whom venereal disease is very common, and by the keen look-out for thirty years for gonococcal endocarditis at the Johns Hopkins Hospital. The much debated question of the relation of rheumatic endocarditis to recognized bacterial endocarditis is carefully considered, and, while it is admitted that rheumatic endocarditis may in the future be proved to be bacterial, the following data are laid down as necessary before a case can be labelled rheumatic: negative cultures from the blood during life or from the blood and heart lesions after death, and a clinical history of rheumatism or chorea. Aschoff's focal perivascular bodies, which are considered to be characteristic of acute rheumatism, were present in six cases yielding streptococci; for this and other reasons the total number of cases of fatal rheumatic endocarditis was reduced from 43 to only 24; but it is remarkable that fatal cases have lately become less rare than in the earlier years of this hospital's records. The bacterial forms of endocarditis are considered separately; the Baltimore statistics are compared with those from other sources, and valuable summaries given; thus pneumococcal endocarditis contrasts with the rheumatic in occurring later in life, after pneumonia, accompanied by high leucocytosis, frequent embolic phenomena, and in nearly a quarter of the cases by acute

[1] *Johns Hopkins Hospital Reports*, Baltimore, 1926, xxii, Fasciculus I.

preparing for that *peine forte et dure*, unless it is to be understood that a corresponding relaxation on the side of descriptive human anatomy is to be its accompaniment.

POOR LAW REFORM.

Almost a year ago the Ministry of Health circulated to associations of local authorities, to county councils, county boroughs, and others concerned, the proposals for Poor Law reform which were to be incorporated forthwith in a bill.[1] It will be recalled that the Government proposed, among other things, to abolish boards of guardians and transfer their functions to county and county borough councils. But from one cause and another the Ministerial programme was disturbed, and, as recorded last week in our parliamentary notes, the Minister of Health does not now hope to obtain this autumn even a preliminary debate in the House of Commons on the bill he is preparing. It is anticipated, however, that Mr. Chamberlain will shortly issue a draft or summary of the bill for examination by politicians and public authorities, and there is still some expectation that the Government will make this bill a principal item of legislation next year. In the meanwhile it is of interest to note that the provisional proposals of the Minister have been accepted by the London County Council, subject to certain amendments called for by the special conditions obtaining in the metropolis. A report was made to the Council on November 2nd by a special committee, under the chairmanship of Sir Cyril Cobb, M.P., which was appointed in December last to explore the situation.

The Minister's proposals for London involve the abolition of boards of guardians and of the Metropolitan Asylums Board, with the transfer of their functions, institutions, and staff to the London County Council, and the central supervision, through the Council, of the administration of these services. There are in London twenty-five boards of guardians, which control about 140 institutions, including 30 hospitals and infirmaries; and the Metropolitan Asylums Board has about 60 institutions, including 17 infectious diseases hospitals, 10 institutions for tuberculosis, and 7 mental hospitals. The committee considers that the proposals, while not entirely in accord with the principles approved by the Council as a basis for Poor Law reform, should be welcomed as an earnest attempt to deal with a difficult and controversial problem. Under the Minister's scheme the Council will be the ultimate authority in questions of relief, including domiciliary medical relief, and it will undertake complete responsibility for all forms of institutional treatment, all the work relating to pauper lunatics and the mentally deficient at present dealt with by the guardians, and the services of the Metropolitan Asylums Board. One of the declared objects of the scheme is the co-ordination and improvement of the provision for the prevention and treatment of ill health, both institutional and other, and the inclusion in such provision of public assistance which may be required as the result of sickness, accident, or infirmity. With a view to achieving this object it is proposed that the powers of the London County Council shall be strengthened to enable it to undertake the general oversight of all health services throughout the county, as well as the duty of acting in place of a metropolitan borough council in default of any of these services. This proposal is consistent with a scheme which was submitted to the Council some time ago by a special committee on health administration, which desired to see the Council the central organizing authority with the responsibility of preparing surveys of health services from time to time. The responsibility for the distribution of local grants in aid of health services will also devolve upon the Council.

The report presented to the London County Council on Tuesday last stated also that it may be necessary for the Council to be enlarged in order to cope with this transferred work, and that in any case there should be provision (as, indeed, the Minister forecasts) to enable the Council to avail itself by co-option of the services of suitable persons from outside its own body on some of the committees upon which the duties will devolve. There is provision also for the delegation by the Council to the metropolitan borough councils (twenty-eight in number) and the Common Council of the City of London of any transferred service identical in kind with a service already administered by those bodies. The committee is uncertain what services other than maternity and child welfare would fall within this definition. The care of the health of Poor Law children attending school, for instance, could not be delegated, and the committee suggests that the definition should be widened to include similar or ancillary as well as identical services. The scheme also provides that the functions of guardians under the Vaccination Acts shall be vested in the Council, but the committee points out that vaccination is a service extraneous to the general work of public assistance, and thinks that this service should be transferred direct to the borough councils. The registration of births, deaths, and marriages will, under the Minister's proposal, be transferred to electoral division officers acting for metropolitan boroughs. There is a consensus of opinion on the committee that the administration of outdoor relief, or "home assistance," should be a function of the borough councils, the London County Council to be responsible for matters of policy and finance concerning the county as a whole and for the laying down of general principles and rules, including the scale of relief, but delegating to the borough councils the duty of administering such assistance and any ancillary functions in their areas. The Council would appoint an advisory committee, called a Public Assistance Committee, consisting of members of its own body with a number of persons from outside having experience in such work, and each of the local councils would appoint a similar committee.

The London County Council agreed to a resolution authorizing its special committee to enter into negotiations with the Minister of Health, with the Common Council of the City of London, and with the metropolitan borough councils, with a view to the amendment of the Minister's scheme generally on the lines indicated in the report. The matter is one of considerable importance, direct and indirect, to the medical profession, and the outcome of these negotiations, and also of those which must take place between other big public authorities and the Minister, will be awaited with interest. The attitude of the British Medical Association towards certain features in the Government's proposals was discussed briefly in our issue of June 19th last (p. 1048), and a month later the subject was debated further at considerable length by the Representative Body at Nottingham, as recorded in the Supplement of July 31st. Since April a special committee of the Association has been watching the position in regard to reform of the Poor Law.

[1] British Medical Journal, December 12th, 1925, p. 1136.

it was not until the time of Bacon, followed by Descartes, and later still the encyclopaedists, that natural science became free from the influence of authority and the occult, and became based solely on experience.

THE MISSION TO LEPERS.

The origin and growth of the Mission to Lepers are ably and modestly described in an account of fifty years' work between 1874 and 1924, published at the price of one shilling by the mission's London office (33, Henrietta Street, London, W.C.1). The movement commenced in 1869, when Mr. Wellesley Bailey joined the American mission in Ambala in the Punjab, and came in contact with lepers in the leper asylum there. Through the influence of his wife, Miss Grahame of Blackrock, Dublin, whom he married in 1871, he enlisted the sympathies of three sisters, the Misses Pim of Monkstown, one of whom, Miss Charlotte Pim, in 1874 promised to give or try to collect £30 annually in aid of his work in Ambala. At the end of the first year between £500 and £600 had been received, and with this sum a mission to lepers in India was definitely established. The funds increased year by year, and in 1905, after thirty-one years of development and with an income then of £21,005, leper settlements had been organized throughout India, Burma, Ceylon, and the Far East, chiefly in connexion with missionary stations of every religious denomination. In that year the number of the mission's leper settlements or aided settlements was 63, with 5,803 leper inmates and 317 untainted children, who were kept in separate compounds and brought up and educated by the mission's workers. During the next eleven years governments and local authorities co-operated in the work, and a great advance was made; in the remaining eight of the fifty years covered by the report much was done in developing the curative methods of treatment suggested by the researches of Sir Leonard Rogers and others. Some idea of the vast field of work in which the mission is labouring may be gathered from the fact that in the census of India for 1921 as many as 102,513 definite cases of leprosy are recorded, that in China alone the number of lepers is estimated to be 400,000, and that throughout the world there are between two and three million lepers. The improvement that has been effected by the mission in the conditions under which this vast suffering population, originally social outcasts and without hope, are living is inestimable. It is one of the finest examples of world-wide philanthropy that has been achieved in the last half-century. In connexion with the jubilee celebrations in London in 1924 of the Mission to Lepers, a deputation was sent from England to examine the existing conditions in various countries with a view to the extension of the work. The report of this deputation has now been published under the title of *Dawn and Gleam*, by W. H. P. and M. Anderson, which may also be obtained from the mission's London office for 1s. 3d. The report is fully illustrated, and contains a very interesting account of the work in progress in India, China, and Korea. Dr. Robert G. Cochrane, who accompanied the deputation to India, has now published a final report on the medical work of the Mission to Lepers in India, including Burma, which is similarly obtainable. Dr. Cochrane suggests that leprosy hospitals should be organized in future along the lines of a tuberculosis sanatorium, where hopeful cases alone would be admitted. In each province there should be one such hospital with a full-time physician as well as a medical superintendent. A good dispensary and a hospital for medical cases would also be required, and the asylums for chronic lepers would be co-ordinated in the whole scheme, which would involve the appointment of an additional six or seven full-time medical practitioners. Training would be given to medical practitioners and students in the diagnosis and prevention of this disease, and propaganda work be organized among the general public. In a preliminary note it is stated that the council of the mission has accepted the suggested scheme, and, without making any change in the present general character of its work, will endeavour to give effect to the recommendations as rapidly as circumstances and the resources of the mission may permit.

DICK PROPHYLAXIS OF SCARLET FEVER.

The Dick prophylaxis of scarlet fever has now attained a considerable vogue on the North American continent. In the United States, alike in family practice and in the conduct of residential institutions, it is pretty extensively used. It is applied to children in schools, and also, by certain public health officers, to the general child population of areas. In Canada during 1925 the Provincial Board of Health of Ontario co-operated with the executives of several homes or reformatories to produce immunity in their inmates, and scarlet fever toxin figures have been issued in the returns of the provincial laboratories for that year. An account by Professor James Miller of procedure for the immunization of a Canadian city has been published (July) by the *Public Health Journal*, the organ of the Canadian Public Health Association. The city of Kingston, Ontario, which has 23,000 inhabitants, had during the four years ending March, 1925, been afflicted by a prevalence of scarlet fever which rose during each winter season to some 30 cases or more a month, and declined, but without disappearing, in summer. The notification of 38 cases in February, 1925, roused the authorities to action. Arrangements were made to apply the Dick method of prophylaxis, and in March, 1925, it was offered gratis to all comers. Some 1,200 persons, including both children and adults, were treated. Notifications at once began to fall off and continued low. For the first time in the four years since the outbreak began there was no winter rise. From January to May of 1926 the average case rate was less than four a month. At this point the record ends for the present. While the number of persons treated was small and the dosage employed is admitted to have been inadequate, it cannot be denied that a change ensued when the procedure was adopted; but, in the absence of information as to the ages of the persons concerned, the distribution of cases subsequently occurring as between the protected and the unprotected, and similar points, it is difficult to be sure of its causes. A coincidental factor such as spontaneous decline might possibly have been at work. The effort, however, was well devised, and the figures as they stand, if not entirely convincing, are of interest and value as a contribution to the study of scarlet fever prophylaxis.

PUBLIC HEALTH IN GERMANY.

Professor Abel, director of the Jena University Hygiene Institute, lately gave two lectures in London for the Chadwick Trustees on the development and present state of public health in Germany. The German Ambassador was present at the first lecture, and thanked the Chadwick Trustees. Professor Abel compared the origin and administration of public health work in the two countries. In England, owing to the earlier date of the industrial revolution and the consequent crowding into towns, the need of modern hygiene manifested itself before it did in Germany. English public health, in its origin, was inspired by ideas of humanitarianism and economy; German public health was born in the chemical and physical laboratory. The first hygiene institute was founded in a German university in 1865, but the active development of practical hygiene occurred after 1871; in Germany at the present day nearly 67 millions are living on an area almost as large as France, which only supports a population of 40 millions. In 1871

nephritis; previous cardiac disease is uncommon, the infection appears to be uniformly fatal, and acute suppurative meningitis the usual termination. Gonococcal endocarditis, which in many respects resembles the pneumococcal, is less acute in its course, a third of the cases lasting more than two months, and a case of recovery after four months' illness is recorded; it has a special tendency to attack the aortic and pulmonary orifices and the aortic intima. Of the streptococcal cases the acute—namely, under a month's duration—were ascribed to undifferentiated forms in nearly 80 per cent., whereas in the subacute cases—namely, over a month's duration—*Streptococcus viridans* was the infective agent in over 80 per cent. Enough has perhaps been said to show the minute character of the analysis of the pathological data; the clinical features are considered in similar detail, and there can be no doubt that Professor Thayer's monograph will long remain a valuable storehouse for reference.

RESEARCH IN GENERAL PRACTICE.

The claims of clinical medicine to be ranked as a science have lately been ventilated in our pages and elsewhere, and we think that we have shown cause why they should be granted. The fact must not be lost sight of, however, that the great mass of clinical work in this country is done by general practitioners, who, unfortunately, for various reasons are not able to take advantage of the opportunities that offer themselves for advancing medical science. Deficient equipment is no doubt one reason, but very much more often the cause is to be sought in the engrossing and multifarious duties which take up the time and exhaust the energies of the men and women engaged in general practice. The matter has been raised once more in a thoughtful article by Dr. M. Forrester-Brown,[1] in which, after mentioning the nature and vast amount of the material available and the difficulties in the way of its fruitful study, she takes as an example of the good that may be done the schemes for the care and cure of cripples which have been brought into being, first in Shropshire and since in other counties and districts. The distinguishing feature of these schemes is continuity of treatment through co-operation between general practitioners and specialists; a serious attempt is being made to ensure that every case shall be detected at the earliest possible moment and be properly looked after from the first sign of disease until its cessation. Although it is no doubt true that many of the cases treated under such schemes differ in their age and their tendency to spontaneous cure from other categories of disease among the general population, it is suggested that by a somewhat similar organization similar benefits might be secured in those other categories. The great advances in medicine and surgery in late years have made it impossible for any one practitioner to be efficient and up to date in all branches, and increased division of labour seems to be desirable and indeed inevitable. This necessity has already been recognized in various quarters, and the custom of a medical firm including among its members one who specializes in surgery, another in ophthalmology, and perhaps another in cardiology, is, as we are informed, on the increase. Radical changes in the relations between the doctor and those numerous patients who still, like their savage ancestors, look upon him as a dealer in magic, whose spells are conveyed in mixture, lotion, powder, or pill, must come slowly; but it is to be hoped that the younger generations are more wholesomely sceptical and will in time welcome co-operation in medicine as well as in industry. The doctor in populous districts will have, on his part, to train himself to be much more of a specialist than he is at present, and to achieve this recourse would have to be made to post-graduate instruction, a good deal of which might be imparted in local clinics. Dr. Forrester-Brown thinks that the more brilliant practitioners should have the chance of appointment to the teaching staffs of the medical schools, so that some at least of the instruction in his life's work would be given to the student by those who had had personal experience of such work, as was the case under the old system of apprenticeship whenever the master was willing and able to instruct. But since the chief complaint is that neither the earliest beginnings of disease nor the real end-results of treatment are now adequately known and recorded, it seems that teaching of the kind suggested must be given outside the great teaching hospitals, which devote—and, as far as we can foresee, must always devote—their attention to what may for convenience be called acute cases. If this be true it follows that there will be no place for the general practitioner on the staffs of the medical schools. His work and his teaching must be done elsewhere by utilizing the material which only exists outside the walls of the educational hospitals. Dr. Forrester-Brown does not claim to have solved the problem which she set before her readers, but her suggestions seem worthy of consideration and discussion out of which something of practical value may come. Of the soundness of the view that organization, co-operation, specialization, and division of labour are needed in general practice there is not much doubt.

[1] *Practitioner*, September, 1926.

AMBROISE PARÉ AS NATURALIST.

Dr. Paul Delaunay, the well known medical historian of Le Mans, has devoted an erudite monograph[1] to the attention paid by the father of French surgery to the various branches of natural history, including zoology, parasitology, toxicology, and teratology. It may be said at once that Ambroise Paré was merely an amateur naturalist, and that his knowledge of natural history was based, not so much on the direct observation of nature, as on a study of the early Greek and Latin writers, such as Aristotle, Pliny, and Aelian—and even these only at second hand in translations, and on the often distorted descriptions given by travellers of hitherto unknown animals in the recently discovered continents of India and America. Dr. Delaunay points out that Paré had the misfortune to live at a time when science was only escaping from the toils of scholasticism to become the slave of antiquity again. Among other errors Paré shared the belief of Aristotle and Pliny in the spontaneous generation of certain animals, such as spiders, scorpions, worms, frogs, toads, and suchlike. Moreover, Paré's observations on natural history, to the study of which he was drawn by his instinctive curiosity, laboured under three disadvantages characteristic of the time—namely, the absence of a rational classification, an exact nomenclature, and an accurate iconography. Except for one or two designs, all the illustrations in Paré's book had been borrowed from other works, and were either delineations of purely imaginary monsters or inexact representations of animals which really existed. The only problem on which Paré appears to have exercised his critical faculty was that of the existence of the unicorn, his conclusion being that but for the authority of Scripture he could not believe that such animals existed. In his description of monsters, to which he devoted the whole of his twentieth book, Paré attributed their origin partly to the wrath of God or the work of demons. He admitted, however, that natural development might be disturbed by purely material causes, such as inherited disease, weakness of the sperm, narrowness of the womb, or injury from without. In forming a just estimate of Paré's contributions to natural history it must be borne in mind that

[1] *Ambroise Paré Naturaliste*, Laval, 1926.

CHRONIC RHEUMATISM.

CONFERENCE IN AMSTERDAM.

By invitation of the Dutch Committee of the International Society of Medical Hydrology a conference on rheumatism took place at Amsterdam on October 23rd. The guests from England represented the Ministry of Health, the British Committee on Rheumatism, the British Red Cross Society, the British spas, and the British Spa Federation.

The morning was spent at the Institute for Physical Treatment, where the medical director, Dr. VAN BREEMEN, who is also secretary of the Dutch Committee, demonstrated the various methods of treatment by which heat, cold, light, electricity, and manipulation were applied in rheumatic and circulatory disorders. Among these methods were the Winternitz friction bath and hot-air chambers, the steam douche and radiation, followed in each case by immediate manipulation. As many as 300 patients from insurance societies were sometimes treated in one day.

The party were entertained by the Committee to luncheon, after which a public conference on chronic rheumatic diseases took place at the Colonial Institute, about 900 persons being present, Professor TROUB, Chairman of the Dutch Committee, presiding. Letters were received from the Chairman of the German Committee, and from representatives of France, Denmark, Belgium, Sweden, and Austria. Statistics of the incidence of rheumatic diseases were being prepared in Vienna and a special conference was arranged.

The Minister of Labour, Professor SLOTEMAKER DE BRUINE, as chief of the Department of Public Health, officially welcomed the guests. He was glad that Holland should have a good place in this work. He hoped that in Holland statistics of the incidence of rheumatism might be prepared, similar to those published by the British Ministry of Health. The Dutch Government had every desire to support this movement.

Professor TROUB said that the neglect of the study of common rheumatic disorders, and the absence of clear data, was bad alike for the patient and for the community. In Holland there were large numbers of workers suffering from rheumatic invalidity, and he was glad that the press was interesting itself in the question. Dr. van Breemen was the medical consultant to the new Dutch Committee, and they hoped to establish a special hospital for rheumatism in Amsterdam at an early date. These diseases affected the nation as a whole, and a national effort was needed to combat them.

Dr. FORTESCUE FOX said that, visiting the health resorts of many countries, he had become convinced of two things: that their age-long popularity was justified, for modern medical observation had only confirmed the universal experience of the value of external treatment by baths and internal treatment by waters in chronic rheumatic affections; and that these natural physical remedies, if they were to be used with any advantage in our present civilized life, must be given by practitioners of special training and experience. The effects of baths, in particular, must be watched by the eye of the physician from day to day; even more than drugs they were edged tools in rheumatic disease. The recent reports on the incidence of rheumatism in northern European countries, and especially the British report, were the foundation of the present campaign against rheumatism. These had brought out, *inter alia*, the importance of the climatic factor in causation—that is, the dependence of the rheumatic diseases upon physical influences. The International Society of Medical Hydrology believed that investigation ought to go hand in hand with curative measures, as had been done in the clinics established for various forms of disablement during the war. The committees which the Council had set up in northern European countries had therefore recommended that the treatment to be provided for rheumatic industrial workers should be improved both in quantity and quality. Concurrent investigation and treatment under skilled medical direction was the watchword of their movement. The problem in England and Holland was similar, because natural baths did not exist in Holland and were insufficient in England to deal with the large numbers of cases involved. In England it was proposed to develop the facilities for treatment at the spas, and also to set up clinics in the towns for systematic investigation and treatment by external and physical methods. During the last half-century physical treatment had been more developed upon the Continent than in England, and the British guests were glad of an opportunity of studying the methods employed at the Clinic in Amsterdam by one who was a European authority on this subject. Thanks to the courtesy of the German authorities, they were also visiting the great hospital for rheumatism at Aachen, directed by Dr. Krebs. England also had great spa hospitals, worthy of comparison with those of any country, and new and valuable methods of hydrotherapy had been devised in England during the war. They were dealing with a group of disabling diseases which were not only an opprobrium to scientific medicine, but inflicted the most serious economic losses upon all the communities of northern Europe, and it was essential for success that they should join forces in a common effort.

Dr. ALISON GLOVER, British Ministry of Health, welcomed the opportunity of visiting the institutions for the treatment of rheumatism at Amsterdam and Aachen. Although uncertainty still surrounded much of the etiology and treatment of chronic rheumatic diseases, their serious incidence was everywhere admitted, and had been clearly shown sixteen years ago in the admirable statistics of the Leipzig Federation of Sickness Funds, and more recently in Sweden by Dr. Kahlmeter. The report of the British Ministry of Health showed that nearly one-sixth of the total sick pay for industrial invalidity was paid on account of these so-called rheumatic diseases, and this great incidence might be accepted as proved, at least for northern Europe. A second point upon which, at all events in England, most people were agreed was that at the present time, of these great hosts of patients only a minority were able to secure in full measure those forms of treatment which were highly beneficial if not essential. Only a minority were subjected to that thorough search for the focus of infection which was so often required. Again, only a very small minority, usually of the better class, in England at any rate, received proper and appropriate physical treatment. The Royal Commission on National Insurance had now recommended that massage and electrical treatment should be made part of medical benefit. Sir George Newman, Chief Medical Officer of the Ministry, had repeatedly urged the necessity for provision of further treatment, and more recently had foreshadowed a scheme which would include three different types of institution, the first being the physical treatment clinic. Such clinics would serve a threefold purpose: First, they would be clearing houses, directing patients to the form and place of treatment suited to their need, some to spa treatment, some for intensive study at an arthritis unit, whilst others would be greatly benefited by treatment at the clinic itself. Secondly, therefore, these clinics would be out-patient institutions, to supply those forms of physical treatment which were so often necessary for the re-education of muscles and joints, and generally for after-treatment when the active stage had passed. Thirdly, they should be organized in close co-operation with the arthritis unit and with the spa hospital, and provide continued supervision, observation, and after-care, following institutional treatment. Such clinics would be also of great service in diseases and conditions other than rheumatic, such as fractures, deformities, and diseases of the nervous system. The second type of institution foreshadowed was the arthritis unit, which should be in closest co-operation with a large teaching school of medicine or university, enabling it to fulfil the purposes of research and observation as well as teaching. It would also act as a place of preliminary treatment or preparation for spa treatment. Patients would be admitted at the earliest possible stage for thorough examination by modern methods. The focus of infection would, if possible, be found and removed; bacteriological and biochemical investigations would be completed and a diagnosis made before the patient was passed on to another institution, and orthopaedic surgery would if necessary be used. Such a unit would furnish opportunity

only 32 per cent. of the population was urban, in 1925 as much as 64.35 per cent. Professor Abel explained that there were few Reichs laws (laws applying to the whole of the empire), and no Public Health Act comparable with the English Public Health Act of 1875. The Ministry of the Interior is in the last resort responsible for the public health; in Prussia there is a Ministry of Public Welfare with a physician at its head; in other States the chief official is a lawyer. There are about 1,000 full-time medical health officers (Kreisärzte), all of whom are paid by the State; they do also all forensic medical work. In addition a fair number of large administrative units have appointed and are paying medical welfare officers, whose duties are largely clinical; they examine school children, attend maternity and child welfare, tuberculosis, and venereal disease centres. One of the subjects of examination in State medicine is psychiatry. There are no sanitary inspectors in Germany. The Imperial Health Office was founded in 1876 to assist the Ministry. There is now an advisory committee as well; and similar bodies exist in many of the States, but some are not much consulted. A census is taken every five years. In 1871 the crude death rates, which alone were available, were considerably higher in Germany than in England, but in 1925 the German rate was below that of England. The birth rate in Germany had declined greatly, especially in towns, but the decrease was beginning to be experienced in rural areas. He considered that deliberate limitation of the number of children was being practised for economic reasons. In Germany the last figures showed that the population had diminished in a year by half a million. To alter this better economic conditions must be secured for the working classes so as to enable them to afford to have children. This loss of population made eugenic considerations all the more important; people about to be married ought to avail themselves of the facilities for the official medical examinations now available in most of the German States. The group of infectious diseases caused one quarter of the deaths; the vaccination of babies and revaccination of children at 12 against small-pox was compulsory; although it had been proposed to recognize the "conscientious objector," the central position of Germany in the European continent, and its consequent liability to infection from all sides, would make this a more serious experiment than in other countries. Of the relatively few cases of small-pox which occurred in Germany, foreigners constituted a large proportion. Whereas Germany, with its vaccination laws, had 57 cases in the last three years, England had 11,630. No fees are paid to doctors and midwives for the compulsory notifications, which are generally required to be sent to the police. Tuberculosis, venereal disease, and alcoholism had been called the three national scourges of Germany; tuberculosis caused every seventh death. In addition to open-air and forest schools much sanatorium accommodation was provided for children; the advanced cases, so largely responsible for infection, are sent into hospital. There is no general obligation to notify tuberculosis; in Prussia, for example, only open pulmonary and laryngeal cases are notifiable to the medical officer of health. For venereal disease there is compulsory medical treatment, and penalties can be enforced against anyone knowingly spreading such disease. The consumption of alcohol is less than before the war, and the State gives subsidies to temperance societies; but a prohibition law is not now possible. The growing devotion to sport, Professor Abel thought, would diminish the desire for alcohol and tobacco.

We regret to have to record the death, on November 2nd, of Professor Francis Mitchell Caird of Edinburgh. He graduated in 1877, and was professor of clinical surgery in the University from 1908 to 1919.

Nova et Vetera.

A CASE REPORT BY RHAZES.

The following clinical notes from one of the best known works of the old Arabian physician Razi is of interest as showing how the ancient medical men were confronted with the same bedside problems as we are at the present day, and solved them by much the same process as to-day, although the assistance of modern instruments such as the microscope was lacking.

Abu Bakr Muhammed ibn Zakariyya of Ray, known as Razi or Rhazes, was one of the greatest of all the Muslim physicians, and wrote a large number of works; one of the most interesting, as containing so much clinical matter, is the Hawi, or "Continens."

Rhazes did not start his medical career till he was of mature age. He attended the hospital at Ray, near Teheran, in Persia, and ultimately became chief physician to it. Later he became head of the hospital at Baghdad, an institution which he himself founded. There is a legend that when asked to select a site for the building he hung up pieces of meat in various parts of the town, and chose the place where the least decomposition had taken place. The dates of his birth and death are not accurately known, but the latter event took place about 900 A.D.

The following is a translation by the late Dr. E. G. Browne, Professor of Arabic in the University of Cambridge, of one of the cases recorded by Rhazes:

"Abdulla ibn Sawada used to suffer from attacks of mixed fever, sometimes quotidian, sometimes tertian, sometimes quartan, and sometimes recurring once in six days. These attacks were preceded by a slight rigor, and micturition was very frequent. I gave it as my opinion that either these accesses of fever would turn into quartan, or that there was ulceration of the kidneys. Only a short while elapsed ere the patient passed pus in his urine. I thereupon informed him that these feverish attacks would not recur, and so it was.

"The only thing which prevented me at first from giving it as my definite opinion that the patient was suffering from ulceration of the kidneys was that he had previously suffered from tertian and other mixed types of fever, and this to some extent confirmed my suspicion that this mixed fever might be from inflammatory processes which would tend to become quartan when they waxed longer.

"Moreover, the patient did not complain to me that his loins felt like a weight depending from him when he stood up; and I neglected to ask him about this. The frequent micturition also should have strengthened my suspicion of ulceration of the kidneys, but I did not know that his father suffered from weakness of the bladder and was subject to this complaint, and it used likewise to come upon him when it was healthy, and it ought not to be the case henceforth, to the end of his life, if God will.

"So when he passed the pus I administered to him diuretics until the urine became free from pus, after which I treated him with *terra sigillata*, Boswellia thurifera, and Dragon's blood, and his sickness departed from him and he was quickly and completely cured in about two months. That the ulceration was slight was indicated to me by the fact that he did not complain to me first of weight in his loins. After he had passed pus, however, I enquired of him whether he had experienced this symptom, and he replied in the affirmative. Had the ulceration been extensive, he would of his own accord have complained of this symptom. And that the pus was evacuated quickly indicated a limited ulceration. The other physicians whom he consulted besides myself, however, did not understand the case at all, even after the patient had passed pus in his urine."

This case presents an interesting diagnostic problem: was it an attack of malaria or of pyelitis? The reasoning of Rhazes would do credit to a modern medical man. The final opinion of Rhazes is probably one which often enters the mind of many of us, but, it is to be hoped, is expressed a little less bluntly.

constantly numbered more than 1,000 annually. No deaths from small-pox were registered, and there had been no deaths from this cause since the year 1921. Measles was responsible for 512 deaths, which are 1,080 fewer than in the previous year. This is the smallest number of deaths from measles with the exception of the number 269 registered in 1921. Scarlet fever caused 404 deaths, this number being 6 fewer than in the previous year. It is pointed out that from 1855 to 1876 these deaths constantly numbered more than 2,000 annually, and were at a maximum of 6,321 in 1874. The smallest number in any one year was 168 deaths, registered in 1918. Whooping-cough caused 1,737 deaths, which were 112 more than those of the previous year. The deaths due to diphtheria numbered 505, being 63 more than in the previous year; before 1896 deaths from this cause constantly numbered over 1,000, but since 1897 the number has been gradually falling. Among the other epidemic diseases, encephalitis lethargica was responsible for 154 deaths, erysipelas for 150, cerebro-spinal meningitis for 83, infantile paralysis for 21, malaria for 9, and dysentery for 7. The deaths from encephalitis lethargica were 27 fewer than those of the previous year. Deaths from influenza in all numbered 1,246. This number is 1,244 fewer than in the previous year, and compares favourably with 11,111 deaths in 1918, 7,215 in 1919, and 3,706 in 1922. The number in the year under review is smaller than in any year subsequent to 1917, with the exception of 1923. Tuberculosis in all forms was responsible for 5,390 deaths. This number is 263 smaller than in the previous year, 418 fewer than the mean of the numbers for the preceding five years, and 1,228 fewer than the mean of those of the preceding ten years. It is the smallest number of deaths from tuberculosis yet recorded in Scotland. It is pointed out that in 1870 deaths from tuberculosis in Scotland attained a maximum of 13,027. The annual number fell below 11,000 in 1884, below 9,000 in 1910, and below 7,000 in 1919; the present is the fifth consecutive year in which these deaths have numbered fewer than 6,000. Of the 5,390 deaths ascribed to tuberculosis, 3,734 were due to tuberculosis of the respiratory system—153 fewer than the corresponding figure for the previous year, and the least number of deaths from this cause yet recorded in Scotland. In the larger burghs taken collectively the death rate from tuberculosis of the respiratory system was 91 per 100,000, in the smaller burghs 65, and in the county districts 62. The deaths due to malignant disease numbered 6,675, constituting a death rate of 136 per 100,000. Both the number of the deaths and the rate are the highest yet recorded, the deaths being 177 more than in the previous year, 528 more than the mean of the numbers of the preceding five years, and 862 more than the mean of those of the preceding ten years. The male death rate from this cause was 129 per 100,000, and the female death rate 144. Of the total number, 4,679 were ascribed to carcinoma, 266 to sarcoma, and 1,730 to other specified forms of malignant disease. The most frequent sites of malignant disease among males were: stomach 763, intestines 490, rectum 238, liver 193, oesophagus 155, prostate 136, and tongue 199, an order of frequency the same as in the previous year. The most frequent sites among women were: stomach 748, intestines 585, breast 566, uterus 461, liver 294, and rectum 186. Diabetes was responsible for 457 deaths, of which 168 were males and 289 were females. It is pointed out that deaths from diabetes in recent years have shown a considerable diminution, especially in the male population. Syphilis was the stated cause of death in 114 instances, a number 37 less than in the previous year. Pernicious anaemia was stated as the cause of death in 447 cases. The total number of deaths attributed to pneumonia during the year was 5,821, including 428 deaths from pneumonia associated with influenza. This number is 1,870 less than that for the previous year. Deaths attributed to violence numbered 2,617, which is 218 more than in the previous year.

Vaccination.

The report deals especially with the vaccination of children born in the year 1924, who in ordinary course should have been vaccinated during that year or during the first half of 1925. Of the 106,901 children born in 1924, 99,077 survived at the age of 6 months, when statutory vaccination should have been carried out. Of these, 62,382, or 62.96 per cent., were either certified as having been successfully vaccinated or were reported to be unsusceptible to vaccination. The number not reported to be vaccinated was 35,808, or 36.14 per cent., of whom 29,568 remained unvaccinated by reason of a declaration of conscientious objection on the part of the parents. It is pointed out that prior to the passing of the Vaccination (Scotland) Act of 1917, which made conscientious objection of parents a valid reason for avoiding statutory vaccination, more than 91 per cent. of the surviving children were successfully vaccinated. Since this there has been a gradual annual fall in the number vaccinated, with the exception of the year 1920, in which there was an epidemic of small-pox in Glasgow, when the percentage rose temporarily to 70.54.

VOLUNTARY HOSPITALS IN GREAT BRITAIN.

Seventh Annual Review.

The seventh annual report on the voluntary hospitals in Great Britain, excluding London, for the year 1925 has just been issued. It has been complied by Mr. R. H. P. Orde, acting director of hospital services, Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society, and has an introduction by Sir Arthur Stanley, Chairman of the Joint Council. A summarized record of the work of 749 hospitals is given, and an attempt is made to define the position of the provincial hospitals of Great Britain in respect of the facilities provided for treatment, the extent to which they are utilized, the annual cost of maintaining them, and the sources of the funds concerned. These subjects are illustrated by fifty-one tables. Since the publication of the last report the area covered by King Edward's Hospital Fund for London has been enlarged to include twelve hospitals with a total of 332 beds, which were previously considered extra-metropolitan. The present report deals with 749 of the 791 provincial voluntary hospitals, the exclusion of the remainder being due to failure to issue reports, or to forward them in time to the Joint Council.

Financial Position.

During 1925 the total receipts of the hospitals under review amounted to £8,139,220; of this total the expenditure on maintenance and development accounted for £7,121,090, leaving a surplus of £1,018,130. More than 75 per cent. of the hospitals at the end of the year had a credit balance in their maintenance accounts. With the exception of 1924, there has been an annual improvement in the financial position since 1920, and the invested funds have increased during the same period by nearly £6,000,000. Taking the English provincial hospitals as a whole, the percentages of the income obtained from the three sources of interest from investments, voluntary gifts, and earnings was 15.1, 63.5, and 21.4; the corresponding figures in the case of 118 London hospitals were 21.8, 43.6, and 34.6. The support received in the form of subscriptions to the provincial hospitals was greater in 1925 than in any of the previous five years, and the level of donations was well maintained. The amounts derived from the various forms of contributory schemes have grown from £25.22 per available bed to £35.58. It is shown further that hospitals with highly developed contributory schemes have overcome their financial difficulties to a large extent, there being no apparent difference in this respect between industrial and agricultural areas. In the large hospitals this source of income was double that of any of the other principal sources. The amount derived from the public services has fallen to less than 10 per cent. of the total income; contributions in respect of military and pensioner patients have almost ceased, but with the increasing co-operation between the State and voluntary hospitals the income under this head is likely to increase. In Scotland, where receipts from legacies form a very important part of hospital income, there was a diminution in this respect during the year under review, but, nevertheless, there was a surplus of receipts over expenditure of £308,146. The financial stability of Scottish hospitals is further shown by the fact that, whereas in 1920 the deficit of ordinary income

for team work in both research and treatment. The third type of institution was the spa hospital, organized in closest co-operation both with the arthritis unit and with the physical treatment centre. The hospitals at Bath, Buxton, and Harrogate suffered from the fact that many of their 650 beds were occupied by advanced cases. The patients having been thoroughly examined and the preliminary treatment completed at the arthritis unit, spa treatment would be much more beneficial and the duties of the spa physician simplified.

Dr. Krebs described the treatment of insured rheumatic patients at the Landesbad at Aachen, of which he is director.

Dr. van Breemen protested against the common opinion, even in medical circles, that the control of rheumatic diseases was impossible. Many facts had been published, and many results put on record by well known medical men, proving that successful treatment was possible, even with the present poor organization. He believed that when the family doctor had received in the university medical education in the diagnosis and treatment of rheumatism the results would be much better. But more was required than the family doctor in contending against these diseases. A special hospital for rheumatism was needed, with a laboratory for scientific study. It had been demonstrated, especially in America during the last twenty-five years, that hospitals for particular diseases were of great advantage to the patients and to science. Holland might be made an important centre for the study of the rheumatic diseases, but both energy and funds were needed for this purpose. Moreover, "every disease with a social significance must be fought at the beginning and not at the end."

On the following day the conference was resumed at Aachen, where Dr. Krebs and his assistants demonstrated the organization of the Landesbad, erected by the friendly societies of the Rhine Provinces in 1912 for the use of their members suffering from rheumatic diseases. The cases, usually in an early stage of disease, are selected by a commission at Düsseldorf. There are 360 beds and a complete system of physical treatment.

THE HEALTH OF SCOTLAND.

Report of the Registrar-General for 1925.

The seventy-first annual report of the Registrar-General for Scotland, dealing with the year 1925, has just been issued. The population of Scotland in the middle of the year is estimated as 4,893,032—an increase of 11,395 over that of the previous year, and 10,535 more than the population of Scotland as ascertained by the census of 1921. Of the total population, 2,352,708 were males and 2,540,324 females. There was an excess of emigrants from Scotland over immigrants into Scotland of 28,430. The births registered during the year were 104,137; this number is 2,763 fewer than that of the previous year, and is less than that of any year since 1858, with the exception of the war years 1917 and 1918. The birth rate for the year was 21.28 per 1,000, the lowest yet recorded, with the exception of the two war years mentioned above. There were 6,831 illegitimate births registered during the year—the smallest number yet recorded, being 255 less than those of the previous year; they constituted 6.56 per cent. of the total births registered. The marriages registered during the year numbered 32,473, which is 145 more than in the previous year, but 5,107 fewer than the mean of those of the preceding five years, and less than those of all years since 1910, with the exception of 1911, 1916, 1917, and 1924. The deaths registered during the year numbered 65,507; this is 4,850 fewer than in the previous year, 2,680 fewer than the mean of the deaths in the preceding five years, and 6,114 fewer than the mean of those in the preceding ten years. This is the smallest number since 1861, with the exception of 1923. The annual death rate was 13.39 per 1,000, which is 1.02 less than that of the previous year. This is the third year in which the Scottish death rate has been less than 14, the two previous occasions being 1921 and 1923, with death rates of 13.56 and 12.91 respectively. The number of reputed centenarians whose deaths were recorded and verified during the year was 8. The investigation of cases dying at a reputed age over 100 has now been made for sixteen years, and in all 224 reputed centenarians have been dealt with; in 103 instances the attainment of the age of 100 has been verified, in 29 contradicted, while in 92 no satisfactory proof of age was obtainable. Among the causes of death found to be more than usually prevalent during the year were cancer, puerperal conditions, whooping-cough, and violence, while among those causes which had decreased were measles, diphtheria, tuberculosis, syphilis, bronchitis, and pneumonia.

Death Statistics.

Of the 65,507 deaths registered, 33,036 were of males and 32,471 of females. The death rate in the male population was 14.04, and in the female population 12.78 per 1,000. When the deaths are distributed according to the place of usual residence it is found that 34,046, or 52 per cent., occurred among the population of the larger burghs; 12,444, or 19 per cent., among that of the smaller burghs; and 19,017, or 29 per cent., among that of the county districts. In the larger burghs taken collectively the crude death rate of the year was 14.94 per 1,000, the corrected death rate 14.36; in the smaller burghs taken collectively the crude death rate was 12.14 and the corrected death rate 13.10; and in the county districts taken collectively the crude rate was 11.8 and the corrected death rate 12.1. Of the larger burghs the death rates of the year were 17.4 in Perth, 17.1 in Dundee, 16.1 in Edinburgh, 15.8 in Kilmarnock, 15.4 in Glasgow, 10.4 in Motherwell and Wishaw, 10.6 in Hamilton, and 7.6 in Clydebank. Of the smaller burghs, exclusive of those with populations of less than 1,000, the crude death rate of the year varied from 27.1 in Whithorn to 3.7 in Ballater. In the county districts the crude death rate varied from 23.1 in the western district of Ross and Cromarty to 6.3 in the Laurencekirk district of Kincardine. Out of the total 65,507 deaths, 14,249, or 21.7 per cent., were of children aged less than 5 years; 26,525, or 40.5 per cent., were persons aged 5 to 65; while 24,733, or 37.8 per cent., were of persons aged 65 and over. Compared with the previous year, the deaths of children under 5 were 2,767 fewer, those of persons from 5 to 65, 906 fewer, and those of persons of 65 and over, 1,179 fewer. The average age at death of all persons dying during the year was 46.64 years—that of males being 44.15 and that of females 49.17. Deaths of children aged less than 1 year numbered 9,430 (1,016 fewer than in the previous year). This is the third year in which deaths of children under 1 year of age have numbered less than 10,000, the previous occasions being in 1918 with 9,836 deaths, and 1923 with 8,825 deaths. The infantile mortality rate of the year was 90.6 per 1,000 registered births, which is 7.1 less than that of the previous year, 1.5 less than the mean of the infantile death rates in the preceding five years, and 8.7 less than the mean of those in the preceding ten years. It is lower than the Scottish infantile mortality rates of all previous years with the exception of 1921 and 1923, when the rates were 90.3 and 78.9 respectively. It compares favourably with infantile mortality rates from 1855 to 1915, which never fell below 100 and were usually over 110. Since 1915 the infantile mortality rate has been under 100 on seven occasions and above 100 three times.

Causes of Death.

Of the 65,507 deaths, 65,009, or 99.2 per cent., were certified by a registered medical practitioner or by a procurator-fiscal. The remaining 498 uncertified deaths is the smallest number yet recorded. In 64,355 instances, or 98.1 per cent. of the total, the cause of death was definitely specified, while in 1.5 per cent. there was an unsatisfactory entry such as "sudden death," "heart failure," or "natural causes." With regard to the infectious fevers, deaths from enteric fever numbered 52. It is pointed out that from 1865 to 1882 deaths from this cause annually numbered more than 1,000, and from 1883 to 1903 more than 500. Since this time enteric fever as a cause of death has been diminished, the smallest number of deaths in any one year having been 34, in 1924. Typhus fever was responsible for 4 deaths, all in Greenock, and it is pointed out that from the year 1865 to 1871 the deaths from this cause

for two years. The medical superintendent includes in his methods of treatment moogral, pure chaulmoogra oil, urotropine intravenously, and sodium morrhuate by deep subcutaneous injection. Injections of neokharsivan are given for yaws complicating leprosy. It is exceedingly difficult, says the medical superintendent, Dr. Neff, to give any accurate estimation of the value of any specific treatment for leprosy. As a general rule cases of nerve leprosy tend to improve of themselves if under good hygienic conditions, which include their separation, as far as practicable, from the nodular cases. Many nodular cases also improve slowly; they are, however, liable to relapses, and on that account should not be discharged.

England and Wales.

ANTE-NATAL WORK AT THE BRISTOL ROYAL INFIRMARY.

THE governors of the Bristol Royal Infirmary recently resolved to add to the honorary staff an assistant physician who should be in charge of the ante-natal department. This department began in 1921 with the establishment of an ante-natal clinic in the department of obstetrics, under Professor Walter Swayne. Dr. Lily Baker, then obstetric registrar, took charge of the clinic, and under her care it developed so rapidly that now 1,250 new cases attend annually. The benefits derived can be judged from the fact that the incidence of difficult and dangerous cases in the obstetric department has fallen by almost 50 per cent., and proper precautions can be taken to deal with those which may inevitably occur. On October 26th, the election committee of the governors, with the unanimous support of the honorary medical staff, elected Miss Lily Baker, B.A., M.B., B.Ch.Dubl., F.R.C.S.I., to occupy the new position on the staff, and in so doing created, we believe, an important precedent, for general hospitals with teaching schools, of appointing a woman to full membership of the honorary medical staff. Dr. Lily Baker took many prizes and honours as a student, and has had a distinguished career since qualifying. Soon after the beginning of the war she became acting obstetric registrar at the Bristol Royal Infirmary when the late Professor Walter Swayne was away on military service. On his return she joined the W.R.A.F. and served in France and Germany until the end of 1919. Since 1915 she has been an examiner and recognized lecturer to the Central Midwives Board.

ST. THOMAS'S HOSPITAL DINNER.

Old students of St. Thomas's Hospital to the number of two hundred or more gathered at the Hotel Victoria at dinner on October 29th. Dr. R. Percy Smith was in the chair, and among the guests were Sir John Rose Bradford (President, Royal College of Physicians), Sir Arthur Stanley (treasurer of the hospital), Surgeon Vice-Admiral Sir Joseph Chambers (Medical Director-General R.N.), and Lieut.-General Sir Matthew H. G. Fell (Director-General A.M.S.). The chairman devoted his speech to personal reminiscences, extending back over half a century, of the hospital and school, and described some famous old figures at St. Thomas's during the last generation. Sir Arthur Stanley preferred to speak rather of the present and future, and referred to the developments which had been made possible by the generosity of the Rockefeller Foundation on the one hand, and the faith and courage of the medical school in rising to the occasion on the other. He mentioned that this was the last year, in all probability, in which the old students would meet for their annual dinner anywhere save in their own home, for the club opposite the hospital was approaching completion. Here, by the way, was already housed the finest collection of cups of which any hospital in the country could boast. Another benefactor to whom he had to allude in speaking of the new extensions was Lord Riddell, who, when he (Sir Arthur Stanley) was endeavouring to prove to his fellow governors that the proposition was not a sound one financially, promptly made it so by coming forward and lending a very large sum of money at a very low rate of interest. The dean of the school (Sir Cuthbert Wallace) made feeling reference to some outstanding St. Thomas's men who have passed away during the year. Among various matters of domestic interest on which he touched was the fact that forty sons of old students are in the school at the present time. Lord Riddell, in response to the toast of his health, proposed by Dr. J. S. Fairbairn, acclaimed the medical profession as the virtual rulers of society, in succession to the priests of ancient times and the kings of a more modern order. The whole object of civilization was to improve health and extend life. The doctor, he said, had surveillance over the individual from the cradle to the grave. A very successful evening ended with many compliments to the chairman, voiced by Sir George Makins.

NOTIFICATION OF OPHTHALMIA NEONATORUM.

The new public health (ophthalmia neonatorum) regulations place the responsibility for the notification of ophthalmia neonatorum upon the medical practitioner in charge of the case, and the Ministry of Health is urging upon local authorities the importance of refraining from any action likely to deter midwives from promptly seeking medical aid in all cases of inflammation of or discharge from the eyes of infants. To that end it suggests that local authorities should not in future exercise their power to recover from the parents the fee paid to the medical practitioner called in by the midwife. Hitherto the London County Council has taken steps to recover such fees on a scale graduated according to the family income and the number of dependants. The Midwives Acts Committee reports that for a long time it has been impressed with the difficulties surrounding cases of inflammation of or discharge from the eyes of infants. Midwives have been reluctant to obtain medical assistance, in many cases because they shrank from involving their patients in charges for medical attendance. Often, when the onset has appeared to be mild, they have tried to treat the eyes themselves. The committee concurs in the view of the Ministry that nothing should be done which would be likely to deter midwives from promptly seeking medical aid in such cases, and therefore it recommends that no steps be taken to recover the fee paid to the practitioner. The amount hitherto recovered by the Council from patients or other persons responsible has been about £150 a year.

OKEHAMPTON AND DISTRICT COTTAGE HOSPITAL.

The Okehampton and District Cottage Hospital, which has been built at a cost of £6,700, as a war memorial, was opened formally on October 20th. The site of the hospital was presented by the mayor and mayoress, Mr. and Mrs. Blatchford, and largely through efforts of ex-service men the greater part of the money required was quickly raised. The foundation stone was laid on May 27th, 1925. The building, which faces southwards, has a view of the moors across the valley, and the ground floor contains two wards for four beds, as well as the matron's room, surgery, dispensary, and the operating room. On the first floor there are two private wards, a staff common room, and bedroom accommodation for seven. A well planned sanitary wing with good ventilation is situated on the north side of each ward, and there is a possibility of extension of the main wards, if required at a future date. Dr. E. H. Young, chairman of the hospital, described how the ex-service men had urged five years ago that the war memorial should take the form of a hospital. In view of the long waiting lists of the hospitals at Exeter and Plymouth, he believed that a valuable service was being rendered by the provision of this new hospital, which would not compete with the larger ones elsewhere, but would be able to ease the pressure on their accommodation.

THE SURGEONS' DEBT TO THE INSTRUMENT MAKERS.

The members of the Surgical Instrument Manufacturers' Association met at dinner at the Holborn Restaurant, London, on October 29th, with Mr. Ernest W. Mayer in the chair. Among the principal guests were Dr. Irwin Moore and Mr. L. Ferris-Scott, Financial Secretary and Business Manager of the British Medical Association. Dr. Irwin Moore complimented the industry upon its efficiency in design and production, and, speaking as a

amounted to £78,158, in 1925 it was only £17,397, and to meet this deficit there was available a sum of £227,537 from free legacies.

General Statistics.

In round figures over half a million in-patients and two and a quarter million out-patients were treated in the English and Welsh provincial hospitals during the year, the Scottish figures being 117,000 and 376,000 respectively. This represents an increase on last year of 40,000 in-patients and 150,000 out-patients. A complaint is made that the lack of uniformity in presenting the statistics in hospital reports, particularly in regard to the number of out-patients, is the cause of much confusion and even inaccuracy. It is suggested that the records of out-patients should include the numbers treated under such headings as medical, surgical, ophthalmic, and aural, while the out-patients' statistics should be tabulated to show the various departments, such as casualty, medical, surgical, and ophthalmic. The number of new patients should be recorded separately from the subsequent and total attendances. It is added that the volume of work performed by the voluntary hospitals is one of the fundamental factors in establishing a basis of defence for them as a system, and the details provided should, therefore, be full and accurate.

Evolution and Progress.

According to the practice established two years ago, the report contains special articles on matters of importance to hospital authorities. Mr. Thomas A. Pole, F.R.I.B.A., gives a very interesting account of one hundred years of hospital planning—1825 to 1925—illustrated by simple block plans. The general arrangement of the various component parts, such as wards, operating theatres, administrative blocks, and so on, is shown to have improved very obviously during this period, and the importance of making no initial mistakes in arranging the various blocks when planning a new hospital is emphasized. Thus an adequate and well placed store accommodation, for example, may easily be the means of reducing the annual wage bill. The recent increase in the number of small hospitals providing about thirty or forty beds has given scope for much ingenuity in construction, although such buildings are inevitably relatively expensive. On the other hand, there is some danger of an institution of more than 500 or 600 beds becoming too unwieldy for proper administration, and there is a tendency in the large towns to establish branch hospitals on the outskirts. Mr. Pole believes that in the future the original central buildings will function as emergency units, the real hospitals for treatment and convalescence being placed on the outskirts of the cities on ample and open sites free from encroachment.

Sir Basil E. Mayhew discusses the *Revised Uniform System of Hospital Accounts*, issued in January, 1926, and referred to in the Journal of May 8th and 15th (p. 843). Dr. G. F. Barham, medical superintendent of the London County Mental Hospital, Claybury, in a thoughtful account of the relation of mental hospitals to other medical institutions, appeals for closer co-operation between general hospitals, clinics, and mental hospitals. He advocates affiliation between a mental hospital and the nearest general hospital, if possible with a school of medicine attached, in order that the means of treatment of mental disease may be increased, research work organized, psychological medicine be taught more extensively, and better facilities be acquired for training nurses. He envisages the formation of homogeneous units within a scheme of hospital organization to include the clinic of a general hospital, a reception hospital, and a mental hospital. He asks for much greater freedom for the treatment of mental cases in clinics and private hospitals, together with the adoption of the voluntary system on the widest basis compatible with security. He also desires improved education of public opinion in regard to mental disorders and the need for early treatment; all semblance of compulsion and detention should be removed as far as possible. The subject of providing beds for paying patients in voluntary hospitals is dealt with in a series of short articles by twelve hospital secretaries. Reference is made to the paper by Mr. A. G. E. Sanctuary mentioned in the Journal on April 24th, 1926 (p. 740).

Sir John Robertson, medical officer of health for Birmingham, appeals for the establishment of maternity wards in general hospitals, and expounds the advantages of combining maternity work with general hospital treatment. He does not think, however, that there will be any very large call on hospitals for maternity beds until the public generally realizes the advantages of the hospital over the home, not only in complicated, but also in uncomplicated confinements.

New Zealand.

[From our Special Correspondent.]

Post-Graduate Obstetric Training.

The view that the post-graduate instruction of medical practitioners in obstetrics is necessary, even if only to combat the very prevalent belief that surgery is the cure for lack of obstetrical experience, is advanced by Dr. Henry Jellett of Christchurch, consulting obstetrician to the Health Department of New Zealand, in a report to the department on the subject of maternal welfare. He adds: "I refer particularly to the increasing tendency, not only in New Zealand but elsewhere, to perform Caesarean section for many types of obstetrical complications." A movement is on foot within the New Zealand Branch of the British Medical Association to establish a New Zealand Obstetrical Society. This society will be able to collect and collate valuable data. The maternal mortality in New Zealand is rather higher than it should be in comparison with several other countries, and assuming that statistics are to be wholly relied upon, there must be a higher incidence of obstetrical abnormalities in New Zealand or a not altogether satisfactory standard of technique on the part of doctors and nurses.

Unregistered Dentists.

There is an excellent dental school at Otago University which should be the only avenue through which dental students proceed to qualification in dental practice. Already since the war special examinations of low grade have been granted to dental students, and indeed to dental mechanics, who had served in the war and whose course of training had been in that way interrupted. Political agitation, however, has been active to open further the door of easy access to the profession; it has been resisted not only by the Dental Association but by the medical profession. A Royal Commissioner was recently appointed to report on the whole matter, and his report has caused consternation to those who think that the standard of dental education should be under the control only of the Senate of the New Zealand University. The report is unjust to the students who incur the expense and labour of the regular statutory course in dentistry. The Commissioner recommends that fifty-seven unregistered dentists whose names are listed should be allowed to sit for examination prescribed by the New Zealand University Senate, on the recommendation of the Dental Faculty of the University of Otago. The examination is to be as nearly as possible similar in character to, but not lower than, that prescribed in 1922 and 1923. The Commissioner recommends that one examination be held in December, 1927, and a second in December, 1928, for applicants who may not satisfy the examiners in 1927. It is also recommended that legislation be passed to allow the fifty-seven dentists named to practise until March 31st, 1929, pending registration. Thirty-two of the fifty-seven dentists are classified as returned soldiers, and six are discharged soldiers who served in New Zealand only. An Act to give effect to the terms of this extraordinary report was passed by the New Zealand Legislature.

Treatment of Lepers.

A leper station is established at Makogai Island in Polynesia, and 308 lepers are under treatment. New Zealand accepts liability for 63, including 12 from Samoa and 41 from Cook Islands and Niue. The number discharged cured since the station was opened in 1911 and up to June 30th, 1926, was 119. Sixteen others are under observation, but have not yet been without signs of disease

forefront in the scientific and humanitarian care of the insane, and expressed the hope that the after-care of the mental defective would shortly be extended. Mental welfare work fell into two sections—the care of defectives in schools and the care and protection of defectives in the community. Provision should be made to give defectives, on leaving institutions, amusement and recreation suitable for their limited mentality, and also for handicraft classes and workshops under conditions adapted to their temperament and physique. In a paper by Dr. Eichholz, chief medical inspector, Board of Education, London, it was stated that roughly 60 per cent. of the whole ascertainable number of educable mental defectives were at present receiving instruction. Under a well managed scheme of after-care it should be possible to place at work from 45 to 50 per cent. of these pupils; 20 or 30 per cent. of them would probably require custodial care, and the remainder would require close supervision in order to keep them at work. Dr. Jardine, medical officer of the Scottish Education Department, said that in 1919-20 the number of children attending special schools or classes in Scotland was 2,449, while in 1924 the number had increased to 3,440. In Glasgow the proportion was 114 per 10,000 children, in Edinburgh 64, in Aberdeen 60, and in Dundee 23. At the present time there was accommodation for 3,500 children in special schools in Scotland, but according to his calculation there was need for provision for 7,500. Professor W. W. M'Clelland, director of studies, Training College, Dundee, referred to the special classes for backward children which might be attached to ordinary schools. It was a mistake to condemn a child prematurely to the special school, because undoubtedly a certain stigma attached. Dr. Chislett, superintendent, Stoneyetts Institution, Glasgow, who read a paper on the institutional care of the adult defective, said it was a matter for regret that now, nearly thirteen years after the passing of the Mental Deficiency Act, Scotland had done very little towards providing colonies for adult mental defectives, especially when it was remembered how much had been accomplished by the various institutions for mentally defective children. All the dangers of mental deficiency to the community arose from the adult defective. After-care associations concerned with visiting defectives in their homes and with boarding them out in supervised private dwellings did some good, but there were many adults whose freedom was a menace both to themselves and to the community at large. The only suitable treatment for these was segregation and a continuation of the treatment they had received as children. Colonies where this could be carried out were imperative. The attention of the local authorities had of late been directed more and more to the mentality of the criminal classes, and prison medical officers had for many years been ready to admit mental defect as accounting for certain criminal propensities. Dr. Clarkson (Larbert) said that a State institution for criminal defectives in Scotland was urgently required.

Industrial Health.

The Industrial Health Education Council, which was formed in 1922 for the purpose of disseminating knowledge likely to prevent disease and accidents to people engaged in industry, held its first meeting for the new session in Edinburgh on October 27th. Originally this was a purely Scottish organization, but its activities, having recently been attended with considerable success, have been extended into England and Wales. In order to meet with growing demands from England the Council has now formed itself into an Industrial Health Education Society for the United Kingdom. Sir William Haldane, W.S., Edinburgh, who was in the chair, said that there had been a great demand from over the border for the work and help and guidance of the Council, and the Ministry of Health had asked it to extend its work in the south. Sir Malcolm Smith said that the success of the effort had been surprising: there was evidently a field in the industrial world awaiting development, for the people were very anxious to get information as to the means of maintaining their health and of avoiding illness. He believed that the organization would in time become of still greater importance and that it might be taken over by the Government.

Ireland.

Ulster Medical Society.

The opening meeting of the session of the Ulster Medical Society was held in the Medical Institute, Belfast, on October 28th. The outgoing president, Mr. J. A. Craig, F.R.C.S., introduced his successor, Dr. M. J. Nolan, medical superintendent of the Down District Lunatic Asylum. After the minutes had been read, the President called on Dr. A. F. Hurst of Guy's Hospital, London, who read a paper on "The constitutional factor in disease." Dr. Hurst referred to the old conception "diathesis" in relation to disease, so popular in France many years ago, and to the disuse into which the term had fallen in England; this was due to the scientific methods in examination which had been more and more used as chemistry and, later, biochemistry were developed. Too much attention had been paid in modern methods to parts of the body, too little to the patient as a whole—that is, to a biological knowledge of the constitution. Taking the stomach as his first instance, Dr. Hurst said that great variations had been found in its anatomy, and its functioning or chemistry; the normal, average, or orthotonic stomach was, as regards size, found in 80 per cent. of healthy persons, but in 4 or 5 per cent. there was the short stomach, supposed erroneously to be due to hypertone, and in 4 or 5 per cent. the long stomach, supposed to be due to want of tone, and called gastroptosis; as the transverse colon follows the lower border of the stomach, similar descriptions were given of it. In about 50 per cent. of individuals the quantity of hydrochloric acid in the stomach secretion was average or normal, but 4 or 5 per cent. had hyperchlorhydria, and 4 or 5 per cent. had no hydrochloric acid, yet these persons, above or below the average, were healthy people; short or long stomachs, and a degree of acidity above or below the normal, ran in families, and no difference was found in the mucous membrane. If the 80 per cent. average people suffered from septic teeth they escaped or had only some indigestion; if persons with hyperacidity had focal infection in the mouth, a high proportion developed a duodenal ulcer. If patients with hypochlorhydria had septic foci in the mouth the microbes escaped into the intestine, owing to the absence of the disinfectant action of free hydrochloric acid. Of cases of bacillary dysentery, 25 per cent. had no free hydrochloric acid, and nearly a third of patients with appendicitis and cholecystitis were hypochlorhydriacs. This achlorhydria also predisposed to Addison's anaemia and to subacute combined degeneration of the cord. In three-fourths of the cases Addison's disease was a family disease. From this it followed that the gastric juice of the relations of a patient with Addison's disease should be examined, and if achlorhydria were found preventive measures taken. If a patient improved or recovered, relapse or recurrence was common, as the predisposition (the absence of free hydrochloric acid) was still there. In all cases of achlorhydria, free dilute hydrochloric acid should be given (2 drachms thrice daily)—one dose early in the morning on a fasting stomach, and two others with meals. The study of blood pressure, Dr. Hurst said, illustrated the same proportions: 80 per cent. of individuals had an average of 125 mm. (male) and 115 mm. (female); and the pressure was no higher at 40 than at 16, but some 3 to 5 per cent. of healthy persons had a pressure of 150 mm. (women 140) and 3 to 5 per cent. a pressure of 105 mm. An insurance company said that the best guarantee was a low blood pressure—the asthenic type; it predisposed to nothing, but the patients were more liable to suffer from fatigue. High blood pressure predisposed to changes in the arterial walls, and persons presenting it were more apt to suffer from septic foci, and from too much eating, drinking, and smoking. The symptoms were due to overwork and worry, and the toxins already mentioned. Another instance showing the importance of constitution was furnished by the predisposition of those with hyperacidity of the urine to contract nephritis in scarlatina. Of 100 patients with scarlatina, 20 had

laryngologist and aural surgeon, he traced the progress in his specialty during recent years. Removal of the enlarged and unhealthy tonsil had, he said, now been converted into practically a bloodless operation, thanks to the instruments which had made possible the improvement in technique. In early cancer of the larynx, thanks again to instruments of precision, cures could now be obtained in 80 per cent. of the cases, as contrasted with 14 per cent. operation mortality and 43 per cent. recurrences thirty years ago. For more advanced cases the instrument makers had supplied an artificial larynx, by means of which the patient was able to speak in an audible voice. With regard to operations on the mastoid and labyrinth there were most delicate and intricate instruments available for the restricted area. No greater development had taken place in the recent history of surgery than peroral bronchoscopy. The present-day oesophagoscope and bronchoscope had evolved from the endoscope of Richard Cruise and the auroscope of John Brunton, two pioneers to whom all homage was due. The case of the celebrated engineer Brunel illustrated the helplessness of the surgeon eighty years ago. Brunel accidentally inhaled a half-sovereign into the bronchus. In those days the recognized method of treatment was to hold the patient upside down and strike him on the back; if this failed tracheotomy was performed. Ordinary inversion failing in the case of Brunel, Sir Benjamin Brodie opened his trachea and made a number of unsuccessful attempts to reach the coin by inserting forceps through the wound. Brunel himself, however, being an engineer, came to the rescue and designed a revolving platform, hinged so that one end could be elevated or lowered, and, strapped prone on this, his head and trunk were suddenly depressed while he was violently struck on the back. The coin fortunately was shot out of his bronchus into his mouth and fell on the floor. This "inversion" period, Dr. Irwin Moore added, continued up to twenty-five years ago, when the practical utility of the direct method of bronchoscopy was first demonstrated. In the case of foreign bodies accidentally aspirated into the respiratory tract the mortality had been reduced from the 52 per cent. of the pre-laryngoscopic period to between 5.3 and 1.7 per cent., depending on the skill and experience of the operator. In the case of foreign bodies impacted in the food passages the mortality had been reduced to 3 per cent. Mr. Ferris-Scott, who also responded for the guests, recalled the tribute which a past President of the British Medical Association, Sir William Macewen, had paid to the surgical instrument makers when he said that no matter what skill the surgeon might have at his command, unless he had proper instruments he was as helpless as a tyro. Other speakers were Mr. P. C. Maw and Colonel A. Young. The chairman emphasized the merits of the British industry, and referred regretfully, as did other speakers, to their inability as yet to obtain protection under the Safeguarding of Industries Act.

Sir James Barr.

Sir James and Lady Barr were entertained by the Liverpool Ulster Association, of which Sir James is president, at a farewell dinner at the Exchange Station Hotel on October 26th. Dr. T. Clarke presided over a large gathering of the committee and ladies, and, in proposing the health of the guests, said that Sir James Barr had never forgotten his old country, but had always stood forth as an Ulsterman. Sir James Barr, who was received with musical honours, said he had always been proud that he was an Ulsterman, but never prouder than during the war, when Ulster did her duty, and even more. It was a painful thing, continued Sir James, for Lady Barr and himself to leave Liverpool, but after fifty-two years' hard work in the city he felt he was entitled to a little leisure. They were not leaving through ill health. It was far better to retire in the full enjoyment of life than to wait until a senile condition was reached. They were not going to lead an idle life; he could not be happy if he had nothing to do. As far as his professional work was concerned, he had taken a special interest in preventive medicine ever since he devoted himself to the subject as medical officer at Kirkdale Prison in 1877 and 1878. He wanted people to look after their health just as much as they attended to their diseases.

Part-time Medical Officers of the London County Council.

Assistant medical officers employed by the London County Council on part-time engagements for the school medical service are paid inclusive salaries of £360 a year and £180 a year for six and for three half-days' duty a week respectively. It has been found necessary to fix a basis of calculation in connexion with payments to such officers in respect of half-days worked in excess of the number indicated in the terms of their engagements, and with deductions from salaries in respect of leave of absence in cases in which full pay is not allowable. It has been reckoned that normally the two classes of medical officers work about 264 half-days and 132 half-days a year respectively, and the Council has decided to fix the basis of calculation of pay accordingly. A year's duty is therefore to be reckoned as 264 half-days a year in the case of officers appointed for six half-days a week, and 132 half-days a year in the case of those appointed for three half-days a week.

Scotland.

Veterinary Science in Scotland.

The annual report of the Royal (Dick) Veterinary College at Edinburgh for its 103rd session, 1925-26, has just been issued. This shows the wide area from which students are drawn, as 22 counties in Scotland, 15 in England, and 5 in Ireland had been represented, while students also came from South Africa, India, Palestine, Peru, and the Malay States. The number of graduates attending advanced courses of instruction had steadily increased, and it had been found that the opportunities for post-graduate study had been a source of inspiration to students taking the ordinary professional curriculum. A centenary post-graduate fellowship of the annual value of £250 had been instituted as a permanent memorial of the 100th anniversary of the College's foundation; the first Fellow elected during the past session had been pursuing an investigation on animal tuberculosis, working both in the Dick College and in Paris. New buildings for classrooms, laboratory, and hospital had been opened by the Secretary of State for Scotland during the year, and a recent development had been diagnostic work in diseases of poultry; by an arrangement with the Scottish Board of Agriculture, poultry-keepers were now able to obtain information and advice regarding disease among their stock.

The Glasgow Veterinary College held its annual prize distribution on October 19th. Professor Glaister, chairman of the governors, who presided, drew attention to the fact that the College was now existing under some financial difficulty. The governors had determined to carry on the College despite the withdrawal of the grant from the Board of Agriculture in Scotland. The appeal for funds had brought in about £8,000. The certificates and prizes gained during the last session were then presented by Sir Charles Cleland, chairman of the Glasgow education authority, who remarked that the College was passing through a testing time; it was expected that the students, teachers, and governors would do all they could to increase the efficiency of an institution which had done excellent work in past years. While they felt respect for the institution housed in Edinburgh, they believed there was ample room for a Glasgow college as well, and he thought that the future was bright, as veterinary medicine was more and more being associated with the great subject of public health.

After-Care Problems of Mental Defect.

A conference under the auspices of the Scottish Association for Mental Welfare was held on October 22nd in the Training College, Dundee. Miss Evelyn Fox, honorary secretary of the Central Association for Mental Welfare, London, read a paper on after-care of mental defectives, in which she referred to the fact that Scotland was in the

fresh fruit, and in winter their vegetables are practically all cooked, and yet they suffer from no signs of intestinal stasis. Another factor which may be important in improving the digestion of these diabetics is the reduction of the total calories in their diet, with the result that their metabolism never suffers from a surfeit of food. When the digestive tract is offered little, it seems to make the most of it.

Be this as it may, it appears that the diabetic diet has some points about it which may be applied with advantage to the normal individual.—I am, etc.,

London, W.1, Oct. 30th. R. D. LAWRENCE.

THE IMPROVEMENT OF HEALTH WEEK EXHIBITIONS.

SIR,—I quite agree with the protest made by Dr. Burton in your issue of October 23rd (p. 760) concerning the introduction of the commercial element into exhibitions promoted by public health committees.

The sole object of these exhibitions should be educational; there should be no solicitation to buy or even to try a sample, and if space is sold to trading concerns this is inevitable. The only excuse for the admission of the commercial stall is to pay for the hire of the hall and other expenses. I submit that it would be preferable to defer the holding of a health exhibition until the money to make it a real one is available.

I have been associated with several health exhibitions, in all of which each exhibit was selected with a view to demonstrating some item of practical importance to the health of a working-class (or indeed any other) family. No space was sold; no samples were given away; good advice was given, nothing else, except in some cases a leaflet on some point concerned with health; nothing was sold except booklets on health for those who asked for them.

At one such health week which finished on Saturday, October 23rd, the attendances in seven days numbered 43,667. This shows that the public appreciate, and will attend, an exhibition which is purely educational.—I am, etc.,

Hull, Oct. 25th. W. ALLEN DALEY.

SIR,—The letter in your issue of October 23rd (p. 760) from Dr. Burton, medical officer of health, Ilford, on the above subject, opens a matter which I considered in a paper given on July 6th of this year at the Mansion House conference of representatives of sanitary authorities held in connexion with the Royal Sanitary Institute Congress, from which I quote:

"Prominent firms are quite willing to exhibit at such an exhibition, but of course it must be a *sine qua non* that the exhibition takes the form of an educational exhibition, and such firms are frequently quite willing to contribute according to the space occupied by them for their stand. This, of course, may very materially reduce the cost to the local authority. . . . It is, however, in respect of the assistance which may be drawn upon that care must be exercised. A generation ago there was a famous political satire, a story by name "Ginx's Baby," which depicted the use made of the working man by political parties. Likewise at the present day one might state that public health propaganda is becoming a "Ginx's Baby." It is used by insurance companies, who issue leaflets for distribution; pseudo health visitors visit from door to door, ultimately recommending some proprietary food or other article. It is because of these activities that the careful choosing of the exhibits accepted for health week or other exhibitions must be an important factor, and unless this is done judiciously the public will be unable to distinguish between the reasoned, well-balanced advice on health and the mass of camouflaged advertising propaganda with which the country is at present flooded."

I have noticed in the extracts from the paper which have been published so far that the warning and criticism part was generally omitted, while the practical aspects—for instance, the sources for material—were, perhaps quite naturally, given fairly fully. It may be that the income derived from the contributions of exhibitors and the reduction of expenses overshadow the care which must be exercised in the choice of exhibits, and the necessity for the health department of the local authority bringing into prominence their own health propaganda and arranging exhibits, demonstrations, and lectures directly in connexion therewith.

In 1921, building on my experience previously with such exhibitions, I arranged for one that year in Deptford, but while allocating free space in the hall to approved exhibitors, who were carefully chosen, these were allowed, still under such approval, to provide their own stands, but did not contribute in any other way. The control, therefore, was firm, and the public health department also provided exhibitions on diet, etc., and demonstrations, as well as lectures.

The whole point in my mind is one of *adequate* control by the medical officer of health.—I am, etc.,

G. CLARK TROTTER,
Medical Officer of Health, Metropolitan Borough of Islington.

October 29th.

PERSISTENCE OF TUBERCLE BACILLI IN BUTTER FROM TUBERCULOUS MILK.

SIR,—The opening observation of Dr. Cookson, the bacteriologist to the Sunderland sanitary authority, in his article published in your issue of October 9th (p. 637), is correct, but only states the case very gently and mildly. The danger due to the presence of tubercle bacilli in butter is only less than the danger arising from their presence in milk and cream.

Dr. Cookson does not seem to be aware of the work done on the subject on behalf of the United States Bureau of Animal Industry many years ago, and continued over a period of years—at least he does not make any reference to the investigation. One of the workers for the Federal Government—Dr. Schroeder—came to the conclusion that:

"Tubercle bacilli in milk are transferred to the cream, butter, and cheese made from it, and may occur in these products in greater concentration than they had in the milk from which they were derived."

And in April, 1910, the Bureau of Animal Industry reported that:

"The testing of infected butter has been continued, and in the later experiments of this nature the conclusions reached through former work have been confirmed. Tubercle bacilli will retain their vitality and virulence while in butter under common market conditions for at least five months."

(I may mention incidentally that typhoid bacilli also were demonstrated, in the course of the same investigation, to persist in butter for 151 days.)

I hope Dr. Cookson will forgive me if I suggest that when he next publishes an article, he read it over, with a view to making sure that he has written with precision and with lucidity. I experience a difficulty in understanding just what he means by the phrase "specimens of milk were collected from five tuberculous cows; three of these cows were afterwards shown to have extensive tuberculous lesions." I think I can guess what he wishes to express, but on first reading one wonders why he needs to state that three out of five tuberculous cows were tuberculous. I really do not know what he wishes to convey by the fourth paragraph in his article.

From Dr. Cookson's description of his experiments one is led to surmise that he is not *au fait* with the modern significance of the term "pasteurization" when it is applied to milk. He states that he heated samples at 55°, 60°, 70° C., and ingenuously describes careful stirring of the samples for thirty minutes, while the thermometer readings were carefully watched. Fifty degrees Centigrade (131° F.) is far below, and even 60° C. (140° F.) is below, the recognized minimum pasteurization temperature, whilst 70° C. (158° F.) is too high.

Pasteurization of milk involves its heating to a determined temperature, *in closed vessels*, for the appropriate period—most commonly 62.7° C. (145° F.) for thirty minutes—thereafter immediately cooling it to under 40° F., bottling it, and sealing the bottle. The freedom of milk, so treated, from tubercle, and all other pathogenic bacteria, has been demonstrated on innumerable occasions during the past thirty years, both by exact scientific experiments and by practical experience. The vital statistics of those cities in the United States where the very reasonable and moderate requirement is made that all milk sold for human consumption shall be safe—that is to say, either pure and

hyperacid urine, and of these 14 developed nephritis; of the 80 of moderate or low acidity very few, and of those whose urine was systematically kept alkaline only 3 per cent., developed nephritis. Gall stones had been called a family disease; some 30 per cent. of patients gave a family history; this was due to a variation in the fat metabolism found in a certain number of persons; it tended to produce more than the average amount of cholesterol; and this excess when cholecystitis set in started the formation of gall stones. As a therapeutic deduction the yolk of eggs and cream should be debarred in any one with trouble in the gall bladder. Further illustrations were drawn from diabetics, 30 per cent. of whom were said to give a family history, and from asthmatics. People might have an idiosyncrasy for the exciting causes of asthma, but without the asthmatic constitution full asthma would not be developed; it was wrong to allow people to stay in a locality in which they were prone to be affected, and this especially held with regard to schoolboys. A boy ought not to be kept at a school where he was constantly suffering. Every asthmatic had some place where he was free, and in such a locality he should live.

A vote of thanks to Dr. Hurst, moved by Dr. Thomas House and seconded by Professor Fullerton, was passed with acclamation. In conveying it to Dr. Hurst the president said that Dr. Hurst had been elected an honorary Fellow of the society, in whose list there were now many distinguished names.

Royal Victoria Hospital, Belfast.

On the morning of October 29th Dr. Hurst gave two clinics at the Royal Victoria Hospital, Belfast—one on a case of pernicious anaemia, and the other on a case of achalasia of the cardiac sphincter of the stomach giving rise to enormous dilatation of the oesophagus. A large number of medical men attended, and all the students. At the end Mr. Mitchell, chairman of the medical staff, expressed the warm thanks of all present to Dr. Hurst for his clear and illuminating description of these two cases.

Dublin's Health and Baby Week.

An educational health and baby week was organized in Dublin by the Women's National Health Association from October 16th to 23rd. In order that the campaign might reach every home in the city, instead of using one central hall for lectures and exhibitions, advantage was taken of the baby clubs, which are situated in the nine dispensary districts, and each club was a centre of activity during the week, special lectures, health talks, and demonstrations being given. The care of the teeth and oral hygiene was the subject of lectures at the local factories and national schools. That these lectures were very much appreciated was shown, not only by the essays which the school children wrote, but by the fact that some of the managers have asked that a course of lectures on health and hygiene should be given in the schools once a month during the winter. In the factories the management stopped work fifteen minutes before time in order that their workpeople might hear the lectures, and the workers voluntarily remained over time. The local authorities arranged for health talks in the public libraries during the week, and they also distributed leaflets. The week opened on Saturday, October 16th, with a display of folk-dancing by the children in the playgrounds. On Monday, at the Rotary Club, Mr. E. P. McCarron, Secretary to the Local Government Department, spoke on public health as affecting the State, and in the afternoon Dr. Falvey lectured on "What to do before the doctor comes." In the evening Mrs. Russell, M.B., broadcasted an address on public health. On Tuesday, in No. 1 West Dispensary District, violet-ray demonstrations were given, and great interest was shown in the lecture on artificial sunlight by Dr. Maurice Hayes. In the No. 1 East Dispensary District Mrs. Fegan Redmond lectured on vitamins, while in the No. 4 South City Dr. Alfred Boyd gave an interesting lecture on child welfare, which was followed by a lecture on Italian cities by Dr. Frank Dunne. On Wednesday, in No. 2 East, Dr. H. MacAuley gave a lecture on the open-air treatment of surgical tuberculosis. Dr. Stephenson, Dr. Lombard Murphy, Sir William Thompson, and Dr. Hennessy spoke of the advantages of open-air treatment as provided at Cappagh and Leysin. At Inchicore Dr. P. J. Keogh and Dr. Healy lectured on care of the mother and child, and Dr. McArevey gave a special talk on the care of the eyes in school children. Miss Keogh, welfare superintendent in the factories of W. D. and H. O. Wills, gave her experience of the benefit of welfare centres to employers. On Thursday, at No. 2 South City, Dr. Freeman gave a talk on vitamins, and Dr. Crichton and Dr. Solomons lectured on the care of the mother and the child. On the same day, at No. 1 South City, Dr. Magennis, Dr. Keogh, and Dr. Keelan lectured to a large audience on child welfare. On Friday, at No. 3 South City, Dr. Devane gave a lecture on the care of the skin, and Dr. Gaffikin spoke on the school child. The week ended on Saturday with a health exhibition and demonstrations at the Mansion House. There was an afternoon lecture for the child welfare centres of County Dublin, and in the evening a public meeting, at which Mr. McCarron presided, and the principal speakers were Dr. Prudence Gaffikin, Dr. Hennessy, T.D., and Mr. Commissioner Murphy. At the end of the meeting prizes were awarded to the school children who wrote the best essays and to the babies who had come cleanest to the baby clubs during September. A prize is to be awarded subsequently to the mother who writes the best account of what she learnt during baby week.

Correspondence.

GOOD AND BAD DIETS.

The Diabetic Diet.

Sir,—In connexion with the recent contributions to the Journal by Colonel McCarrison and Dr. Harry Campbell on "good" and "bad" diets in modern life, some of the effects noticed in the dietetic treatment of diabetes would seem to be strong evidence in support of their arguments. No one would, of course, advocate the diabetic as the ideal diet, but some of the effects of the adoption of a diabetic diet, apart from the amelioration of carbohydrate metabolism, point a lesson of importance to normal individuals.

The diabetic diet is the antithesis of the usual modern "bad" diet, which is composed so largely of soft, concentrated carbohydrate foods, such as bread, which are entirely absorbed in the small intestine. The diabetic diet, on the other hand, consists largely of bulky vegetables, which leave a large residue in the intestines, and extras, such as bran biscuits and agar jellies, which pass unchanged through the alimentary tract, are often added as a sop to appetite.

After the adoption of a typical diabetic diet, it is very rare to find any digestive trouble. The change is most noticeable in patients who have suffered from dyspepsia or constipation for many years before the development of diabetes, and in whom these symptoms were therefore not due to diabetes. In a short time they are able to eat anything, and rough and bulky vegetables and "heavy" meats, which previously gave them dyspepsia, cease to trouble them at all. Their appetites are excellent, and they usually eat a far bulkier diet than before without inconvenience and with relish. Most of these patients probably eat at least one pound of green vegetables a day. One of my patients who is allowed 15 grams of carbohydrate for breakfast insists on taking it all as vegetables, and starts the day with 18 oz. of cabbage along with his bacon and egg! This is as close an approximation to the pre-agricultural diet of primitive man, to which Dr. Campbell drew attention, as modern man is ever likely to tolerate. I have never seen the constipation of a lifetime able to withstand such a diet.

It seems impossible to say whether this improvement in digestive power is due to the mere bulk of the food or to its richness in vitamins, particularly vitamin B, whose deficiency has been blamed for intestinal atony. I incline to the former view, because many severe diabetics eat no

BRITISH CHEMICAL RESEARCH.

SIR,—The recent merging of the outstanding British chemical companies into a single organization is hailed by scientific men as one of the greatest steps towards the economic prosperity of the chemical industry. For the first time in history, Britain will be able to bring to bear upon the problems of organic chemical research an adequate organization, and it would be an impertinence on my part to discuss in this connexion the general questions of research in industry. There is, however, one aspect of the question to which I would like to draw particular attention—namely, the application of research to medicinal and therapeutic organic chemicals.

The last twenty or thirty years have seen the advance of medicine in the direction of accurate recognition of the nature of disease, and the discovery of the infective agents causing it. While there is, undoubtedly, an economic advantage to be derived from the prosperity and advance of huge commercial organizations, one of their fundamental duties to humanity lies unfulfilled if disease and suffering are left for their suppression to the chance efforts of isolated investigators. Many diseases—syphilis, tuberculosis, malaria, sleeping sickness, to mention only a few—are among the scourges which exact an untold tribute of misery from millions every year, and although the cause of these troubles is accurately known, in only a few cases is any selective drug available. It cannot be too strongly insisted upon that the present condition is one which need not endure. Whilst congratulating the German investigators upon their achievement which has culminated in the introduction of drugs of the type of salvarsan and Bayer 205, we may envy the facilities and resources upon which they are able to draw; it should be realized that there is now no obstacle in the way of establishing such facilities for ourselves, and, quite apart from commercial rivalry, it should be a question of honour with us to push on in the same direction in an effort to free humanity from some of its scourges. In this connexion, too, I would recall the words of the president of the American Chemical Society:

> "... synthetic organic chemistry will prove itself to be, perhaps, the most potent factor of all those that are working towards the advancement of civilization and the peace of the world. I refer to the use of chemical compounds in combating disease and, as a result, prolonging life ... the modern science of chemotherapy. ... Malaria, spread in the most fruitful part of the globe, is incapacitating and destroying millions, and we have used but one drug—quinine—to fight it."

Thus, not only are British human resources concerned, but the whole untapped resources of Empire, now locked up by the spectres of malaria and sleeping sickness, might be released.

What is needed is the vision and broadmindedness of a commercial organization, such as that just formed, that will make possible the formation of a band of synthetic organic chemists, biochemists, and medical men, who, freed from the trammels of routine, will be able to work together upon chemotherapeutic problems. More, also, is necessary; the men concerned must be able, not only to place their hands upon every known compound, process, and method of treatment, but they must also be able to appreciate the difficulties of each other's craft. The medical men must realize that the task of building up the necessarily complex substances which alone seem to have therapeutic value is a matter for careful thought and patient experiment; the chemists must realize the intense difficulties of obtaining and correlating medical and clinical data, and, above all, the commercial organization which endows such a product must be prepared to wait, not months, but years for the fruitful results which must of necessity arise from such a combination of resources.

Finally, it appears to me to be a cogent argument that if, for economic reasons, the cotton industry found itself able to finance research on textiles, then the chemical industry should, for humanitarian reasons, finance research for the full utilization of the resources of chemistry.—I am, etc.,

ARNOLD RENSHAW, M.D.

Laboratory of Applied Pathology and Preventive Medicine, Manchester, Oct. 29th.

Obituary.

FRANCIS WARNER, M.D., F.R.C.P.,

Consulting Physician to the London Hospital.

WE have to announce with regret the death, on October 26th, in his eightieth year, of Dr. Francis Warner. He was one of the first to enter on a field of clinical research, which has since been very assiduously cultivated. He was physician to the East London Hospital for Children at Shadwell, as well as to the London Hospital, and at an early stage of his career he began to devote much of his time and energies to establishing a system by which the physical and mental defects of children might be scientifically estimated and recorded.

He received his medical education at King's College Hospital and graduated M.B.Lond. in 1872; in the following year he took the M.D. degree and became F.R.C.S.Eng. He was appointed medical registrar of the London Hospital in 1877, and assistant physician in 1879. In 1883 he was elected a Fellow of the Royal College of Physicians of London. He published a number of books and essays on his favourite subject, including works on the study of children and on the nervous system of the child. During the years 1893-96 he undertook a laborious investigation of the mental condition of some hundred thousand children in 106 schools; his results were published in the *Journal of the Royal Statistical Society*. In 1896 he wrote *The Children: How to Study Them*, and two years later made another contribution to this subject under the title *The Study of Children*. In 1887 he described his methods and researches in a Hunterian Lecture at the Royal College of Surgeons of England, and in 1892 gave the Milroy Lectures before the Royal College of Physicians of London. In them he described the methods and results of an inquiry as to the physical and mental condition of school children. In 1889 he had given evidence before the Royal Commission on Blind, Deaf, and Defective Children; the report of this Commission led to the passage of the Act which enabled the London School Board to provide special schools. In addition he made reports at various times to the Local Government Board, the Home Office, and the Education Department, on the condition of children for whose care and education these departments were responsible.

Dr. Warner retired from practice some years ago and the present generation knew very little of him; but he was a well known figure in London in the last twenty years of the nineteenth century, and was very greatly liked and respected by his fellow practitioners, although few thoroughly appreciated the importance of the pioneer work he was doing.

FRANK H. BARENDT, M.D.LOND., F.R.C.S.ENG.,

Physician, Skin Department, Royal Southern Hospital, Liverpool.

WE have to record with great regret the sudden death at his home in Rodney Street, Liverpool, on the morning of Thursday, October 28th, of Dr. F. H. Barendt, the well known dermatologist.

Frank Hugh Barendt, the third son of J. H. Barendt, was born in Liverpool in 1861, and received his early education at Liverpool College (of which he later became a life governor) and St. Petri School, Danzig. At an early age he decided to follow the profession of medicine, and on leaving school in 1879 entered the University of Liverpool, where he had a distinguished student career, winning the Roger Lyon Jones scholarship in pathology, a subject which always attracted him. In 1885 he obtained the M.R.C.S. and L.R.C.P. diplomas; in 1887 he graduated M.B.Lond. with honours in materia medica, and in the following year proceeded M.D. He became a Fellow of the Royal College of Surgeons of England in 1890. After obtaining his first qualifications he travelled and studied for some time in France, Germany, and Austria, working in the Universities of Vienna and Berlin under Hebra, Kaposi, Neumann, Max Joseph, and Lassar. On returning to Liverpool he served as house-physician at the Royal Infirmary, senior medical officer to the Bootle

free from dirt and pathogenic bacteria if sold raw, or, in the alternative, pasteurized—are quite convincing. It is regrettable that so many people write, and speak, on this subject with inadequate information. The best modern dairy companies purchase the cleanest milk which they can obtain—and they pay more for clean milk than for less-clean milk—and then they proceed to pasteurize it. Pasteurization is not intended to be a substitute for cleanliness, but it is a complementary measure. Even certified milk is always liable to contamination from human sources whilst being handled, as well as to that from tubercle bacilli arising from kine which have developed tuberculosis in the long interval of six months permitted between tests.

After reading the description of such crude experiments as Dr. Cookson describes; after learning from him that butter was made by using a "starter," with no reference to any test of the latter for freedom from bacilli, one is by no means surprised to learn that he came to the erroneous conclusion that pasteurization is not always a sufficient protection against the survival of tubercle bacilli, although one must demur at his description of his experiments as most careful pasteurization.—I am, etc.,

S. G. Moore, M.D.,
October 14th. Medical Officer of Health, Huddersfield.

SANATORIUM TREATMENT.

Sir,—I do not think that any careful reader of my letter (British Medical Journal, September 25th, p. 578) would find in it—as Dr. Stocks avers—a suggestion that "diagnosis without bacilli is valueless." It would be absurd to make such a suggestion. But to say of 2,794 consecutive cases of pulmonary tuberculosis that they were all cases of "*undoubted*" pulmonary tuberculosis, while admitting that "*the number of cases in which bacilli were sought for and found*" was as small as that stated in Dr. Stocks's statistics, is to leave out of account the effect of the personal factor in diagnosis. What might appear sufficient for a positive diagnosis of incipient disease to one observer would be held to be quite inconclusive evidence by another. This difference in the personal factor is well illustrated by the letter of Dr. E. E. Prest in the same issue of the British Medical Journal, to which Dr. Stocks himself alludes. Dr. Prest maintains that the diagnosis of tuberculosis "should be made by a study of the history of the patient and a careful inquiry into symptoms, *and not by the presence of physical signs* and the finding of tubercle bacilli in the sputum." (The italics are mine.) If this advice is followed, I make bold to say that the percentage of cases which would be wrongly diagnosed as tuberculous would be very considerable, and that any statistics based on figures so obtained would be valueless.

No group of symptoms is pathognomonic of pulmonary tuberculosis, but the presence of certain symptoms together with certain physical signs is practically diagnostic of the disease. To divorce the one from the other is inadmissible. Dr. Prest's system may perhaps result in the cure of some early cases which are thus taken in good time, but against this there have to be balanced some dangers which were very fully discussed in a recent correspondence in the British Medical Journal on "Common sense in relation to doubtful tuberculosis" (February and March).

In previous statistical studies (for example, those published by the King Edward VII Sanatorium) it will be found that separate tables are given for "sputum-positive" and "sputum-negative" cases, and the necessity for this has been generally recognized.

Dr. Stocks puts the question, "Had we not better frankly admit that there are small hopes indeed that any large group of patients are ever likely to be persuaded to spend more than an average of six months in a municipal sanatorium?" I cannot say what is the average length of stay in the Cheshire Joint Sanatorium, but I can say that a considerable proportion of patients sent in by me are retained for a period exceeding six months. To make a practice of sending patients to sanatoriums for a period of three months only was, I had hoped, a relic of the past in any well organized tuberculosis scheme.—I am, etc.,

Alderley Edge, Cheshire, Oct. 17th. E. Weatherhead.

PREVENTION OF CORYZA.

Sir,—A recent article in a lay periodical about winter colds seems to me to be characteristic of many other articles of this type in being slipshod, while its directions are loose, indefinite, and might do harm. Toilet of the nostrils with soap and water is advised, but the author's conclusions as to the mode of action of the remedy are, in my opinion, quite incorrect. For fourteen years I have steadily advocated the use of soap as an almost certain preventive of "colds," if used regularly; it is also the most valuable part of the treatment for an established "cold." (I do not use "cold" vaccines, as they are apt to weaken the myocardium for long periods—due to the toxin of *M. catarrhalis*, I believe.)

As a preventive I advise patients to get a rather thicker soap lather than usual on the hands when washing, and smear it over the face in the usual way, but, further, to rub the lather across the nostrils half a dozen times or so, but not to attempt to push any up the nostrils, nor to sniff it up. They should then proceed to wash the upper part of the face with warm water, and then gently throw several handfuls of the water against the openings of the nostrils—again without sniffing. Then blow the nose, one side at a time, with the finger and thumb, when it will be found that quite a quantity of mucus, inspissated and fresh, mixed with dust and debris, will easily come away. Finally, swill off with a little warm water. When a person already has a "cold" in the nose the above method, along with a few tablets of aceto-salicylic acid, taken at intervals after food, will soon clear up the generalities of "colds" in a normal nose. If there is sore throat as well, then, in addition, a few formalin tablets are a great help. In persons who already have a "cold," their nasal, and often the pharyngeal, mucous membranes are already damaged, and the soap treatment does better with the additional remedies I have mentioned. I consider that all schools and works, and indeed the community generally, should be urged by the Ministry of Health to attend to this very simple measure as a routine for the prevention of "colds," which, in the aggregate, inflict an immense loss on the country. The soap should be good "toilet soap," not common soap containing free alkali. This latter soap injures the skin and so would injure the entrance to the nares, which is lined with skin. In the method I have described this is the only area touched by the lather, so that the soap does not act as an antiseptic, except at the very entrance to the nose, and this is unimportant, as water would do equally well almost. The rationale of the treatment is that the posterior and upper regions of the nose are normally sterile, and that it is better to wash the nose out from above downwards on this account, rather than from below upwards. The soap method thus does away with the certainty of microbes being carried into the upper regions, and also saves the delicate nasal mucous membrane from the insult of coming into contact with "foreign" antiseptics, which both occur with douches, sprays, and sniffing up the nose from the palm of the hand. This latter, by the way, is still advised to out-patients at nose and throat clinics.

The soap lather, used as recommended, stimulates the ciliated and globular nasal epithelium (and causes a flow of mucus from above downwards) reflexly through the terminations of the fifth nerve at the entrance to the nose. Further, the lacrymal glands are stimulated also, through the branch from the ophthalmic division of the fifth nerve which goes to the tip of the nose. This combined flow of mucus and lacrymal secretion, aided by forced expiratory efforts, cleans the nose effectively and safely, in a very short time, and in a very simple manner, so that a child can be readily taught to make a habit of it. The nasal mucus itself is antiseptic, and the increased flow deals with any remaining microbes by inhibiting (or possibly destroying) them, and neutralizing or weakening their toxins. In my long experience of this treatment I have found that if a person is not speedily benefited by it, further diseases are present, or there is need for rhinological surgery.—I am, etc.,

Andrew S. McNeil, L.R.C.P. and S.Ed.

Liverpool, Oct. 20th.

THOMAS CHURTON, M.D.,

Consulting Physician, Leeds General Infirmary.

We have to record with great regret the death, at the advanced age of 87, of Dr. Thomas Churton of Leeds. Born at Stafford in June, 1839, Dr. Churton lost his father during his infancy. His mother became matron of the old General Infirmary at Leeds, and the high character of her work is still remembered there. He was educated at Shrewsbury and subsequently at Leeds, where he entered on his medical curriculum and became a junior resident assistant at the Infirmary. After becoming M.R.C.S. he was for some years in private practice at Erith in Kent. During this period he spent a great amount of time in paying frequent visits to London, where he attended the practice of Guy's Hospital. He then threw up his general practice and went to Aberdeen, where he spent a year in most close and assiduous study, graduating M.B., C.M. in 1876, under the conditions which then prevailed, and proceeding to the degree of M.D. in 1877. Of this time in his life the writer of this notice, himself an Aberdeen man, has very often heard him speak with the greatest pleasure. He made many friends, and used to laugh at them when he was told that his bold expressions of determination to come back and see them all once more would come to nothing, though he had to confess that they were right.

Soon after settling in Leeds he was, in 1879, elected honorary physician to the Infirmary, having as his two senior colleagues the late Sir Clifford Allbutt and Dr. John Eddison, who now lives in retirement at Cuckfield, Sussex. At that time there were no assistant physicians, and Dr. Churton was unsparing in his work, not only in the wards, but in the out-patient room and in the *post-mortem* department. When Dr. Eddison retired from the full staff in 1892 Dr. Churton became senior physician, and he held this position till 1919, when he became a member of the consulting staff. He thus served the Infirmary in an honorary capacity for the long period of forty years. He was for many years on the staff of the Leeds Public Dispensary, and served the old Leeds House of Recovery as well as other charitable institutions. He was lecturer on medicine at the Yorkshire College when it was one of the constituent colleges of the Victoria University.

By many generations of Leeds students Dr. Churton will be remembered as a man of the greatest charm of manner and as having one of the most delightful of voices and one of the most infectious of laughs. His diligence and conscientiousness were beyond all praise, and his clinical investigations were carried out with unsparing zeal. If it has to be stated that his zeal sometimes outran his discretion and perhaps exhausted the patience of his colleagues, this can be put on record without in any way detracting from the high esteem and affection in which he was held by all.

Dr. Churton took great interest in the work of the British Medical Association: he was honorary secretary of the Leeds Division and representative in the Representative Body in 1903, vice-chairman in 1905-06, chairman in 1907, and a member of the Executive Committee for 1909-13. He was a member of the Council of the Yorkshire Branch for 1896-1908, was elected president of the Branch for 1912, and became vice-president in 1915.

Dr. Churton was a man of wide general culture, well read, and a charming conversationalist; he will long be held in affectionate remembrance by the profession in Leeds.

After prolonged ill health Dr. David Lloyd, J.P., died at Denbigh, North Wales, on October 23rd, in his sixty-second year. Dr. Lloyd was educated at Ruthin Grammar School, Glasgow University, and the Middlesex Hospital; he graduated M.B., C.M.Glasg. in 1891. After practising for some time in South Wales he settled in Denbigh in 1892, where he built up a large practice and became very popular. His numerous appointments included those of medical officer of health to the borough of Denbigh and medical officer to Howell's School, Denbigh, honorary surgeon to the Denbighshire Infirmary, consulting surgeon to King Edward's Memorial Association, a member of the court of governors of University College of North Wales, and medical officer to the police force. He was a member, and for some time an alderman, of the Denbighshire County Council, which he represented on the board of governors of the North Wales Counties Lunatic Asylum, Denbigh. He was a justice of the peace of the borough and county of Denbigh, and mayor from 1903 to 1905. Notwithstanding the many claims upon his time, he managed to attend post-graduate classes in Liverpool University and pay weekly visits to the Liverpool hospitals for special study. He interested himself actively in the progress of the North Wales Branch of the British Medical Association, being chairman of the Denbigh and Flint Division in 1912, a member of the North Wales Branch Council from 1911 to 1923, and president of the North Wales Branch in 1915. His death will be keenly felt by a very large number of friends and patients throughout North Wales. He leaves a widow but no children.

The death occurred at Birmingham, on October 16th, of Dr. James Hugh Sproat, in his sixtieth year. Dr. Sproat received his medical education at Queen's College, Birmingham, where he obtained the diplomas L.S.A. in 1891, M.R.C.S., L.R.C.P. in 1892, and graduated M.B.Lond. in 1893. After holding appointments as clinical assistant to the Birmingham City Asylum, assistant medical officer to the Exeter City Asylum, and senior assistant medical officer to the Somerset and Bath Asylum, he practised in North Birmingham for twenty-one years, and retired two months ago on account of ill health. He held the appointment of medical officer to the Jaffray branch of the Birmingham General Hospital for eleven years. He took an active interest in National Health Insurance from its commencement, and served as a member of both the Panel and Insurance Committees in Birmingham. He was a member of the British Medical Association and an honorary member of the St. John Ambulance Association. He married in 1912, and leaves a widow.

The death occurred on October 13th of Dr. Charles Stennett Redmond, in his eighty-fourth year. Dr. Redmond entered the Catholic University, Dublin, in 1856, and after being a scholar and exhibitioner of the university he obtained the diplomas L.R.C.P.I. and L.R.C.S.I. in 1864. He then became resident medical officer of the Jervis Street Hospital, Dublin, and later, as surgeon to the P. and O. Steamship Company, spent three years in India. From 1871 to 1874 he was resident medical officer of the Gateshead-on-Tyne Dispensary, and in 1876 started private practice in that town, taking particular interest in the correction of improper feeding of young children, and, as a member of the Gateshead School Board, in improving the existing types of schools. He subsequently practised in London and Manchester. From 1918 to 1919 he was resident medical officer of the Trafford Hall Red Cross Hospital, Manchester, and when the hospital was closed he retired and went to live in Queen's County, Ireland. When the National University of Ireland was constituted he was granted the degree of M.D. *honoris causa*, as being the oldest survivor of the former Catholic University of Ireland. In 1886 he published a book on *Infant Feeding and Management*, and contributed many papers to medical journals on the diagnosis of scarlet fever, the treatment of infantile convulsions, and the cool-bath treatment of enteric fever. For many years he was a member of the British Medical Association. He is survived by his widow, three sons, and four daughters; his eldest son is a member of the medical profession.

We regret to announce the death, on October 7th, of Professor Emil Kraepelin, who did so much to advance the scientific study of psychiatry. His seventieth birthday was celebrated only last February by his many distinguished pupils. During the last year of his life he had been occupied in arranging for the erection of a home for the German Psychiatric Research Institute, and in preparing the ninth edition of his well known textbook.

The deaths of the following well known foreign medical men have recently occurred: Dr. Maria Parhou of Jassy, a leading Rumanian neurologist and biologist; Dr. S. I. Fedynsky, professor of diseases of infants in the University of Moscow, and Professor Salomon Ehrmann, the Viennese dermatologist.

Borough Hospital, and assistant medical officer to the Rainhill Mental Hospital. When he had completed these appointments Dr. Barendt finally made up his mind to specialize in dermatology. He was appointed honorary surgeon to St. George's Hospital for Diseases of the Skin, Liverpool, and this was followed by election to the post of physician to the department of diseases of the skin at the Royal Southern Hospital. These two posts he filled with great acceptance until his death; he held appointments also as dermatologist to many homes for children in Liverpool. When the British Medical Association held its annual meeting in Brighton in 1913 he was vice-president of the Section of Dermatology, and he had been one of the local general secretaries at the Liverpool meeting in the previous year.

With a wide knowledge of his subject Dr. Barendt combined the power of clear and accurate exposition, and his literary skill found expression in numerous monographs on dermatology and venereal disease. Among these a paper in lighter vein on "Soap, its use, misuse, and abuse," which appeared in 1917, was reprinted in America and Australia. An article published in our columns in 1920, on sclerodermia, is a good example of his writing; it reveals his scholarly approach to a medical subject and his attention to detail. In it he wrote: "There is a real danger that in coining new terms we may be misled to regard them as new knowledge. A great advantage would accrue to us if a short course on the history of medicine were instituted in our university. Nosological nomenclature alone would play an interesting part in such a subject." The subject, however, that perhaps interested him most was the diagnosis and treatment of syphilis. He was one of the first practitioners in Liverpool to make use of intravenous injections of arsenical compounds, and was officially appointed by the Carnarvon and Anglesey health authorities to take charge of the special venereal disease clinic at Bangor. In this work he laid special stress on the need for examining every case minutely and not depending merely on a laboratory diagnosis.

Dr. Barendt was interested in all European languages, and spoke French, German, and Russian, and his services as a translator were often called for. He was an enthusiastic member of the Liverpool Medico-Literary Society, before which he often read papers, and served on the committee of the local Czecho-Slovakian Society; he had held many offices also in the Liverpool Medical Institution, and had been editor of the *Liverpool Medico-Chirurgical Journal*. For some years he acted as the Liverpool Correspondent of the British Medical Journal, and could always be depended on for practical help at short notice, whatever might be the other claims upon his time. In this work his thoroughness and regard for accuracy were conspicuous. So it was, too, in his private and professional life: he shone most in matters of detail, and by countless little attentions won the esteem and affection of all who came to know him.

Dr. Barendt is survived by his widow—a daughter of the late Dr. Crowe of Liverpool—three sons, and two daughters. The eldest son died in 1918; the second is studying medicine in London.

For the following appreciation we are indebted to Sir James Barr:

The death of Dr. Frank Barendt has removed a very prominent figure from medical circles in Liverpool, a valued correspondent of the British Medical Journal, and personally I feel the severance of an unbroken friendship of nearly forty years. He was an excellent linguist, a great authority on orthography and etymology, so that when Barendt had expressed his views on any such point there were very few who would attempt to controvert him. As a classical scholar he had few rivals and fewer equals in the medical profession. He was a cultured gentleman in literature, but I can scarcely add in art, as his tastes were of a very modest character. He was a keen controversialist, and stuck to his views with great pertinacity, though he was always tolerant of those who differed from him. We often agreed to differ rather than bring a disputed point to a final conclusion.

He was a man of wide sympathies, and had he had the means I have no doubt those sympathies would have been freely and tangibly expressed. He had deep religious feelings, which were never paraded for public inspection, and he made no attempt to thrust his convictions on others. His German extraction often showed itself in his attention to the most minute details, so that he was apt to miss the wood for the trees. In scientific work he was an excellent researcher, but failed to correlate the work of others, and could never become a discoverer.

He had a very happy domestic life, except for some losses in his family, and he felt very acutely the early death of a son who gave promise of a brilliant career. Even in adverse circumstances he was always bright and cheerful. He could never afford the luxury of being ill, though it would now appear that in the preservation of health he must have neglected the prevention of disease. Little did I think when I recently received his congratulations that within ten days I should be writing his obituary notice. Dr. Barendt might have been considered an expert writer of obituary notices, and those from his pen which appeared in the British Medical Journal were always faithful representations of the characters portrayed, without any excessive colouring, and any failings were gently glossed over. He adhered to the adage, *De mortuis nil nisi bonum*. With him it is not now a question of *requiescat in pace*, but let his good work blazon forth and his memory be ever kept green by those who knew him. My deep sympathy goes out to his widow and family.

A Colleague closely acquainted with Dr. Barendt's work writes:

His knowledge of his specialty was profound, and his opinion was much valued. He wrote much on his subject, and these articles, as well as his numerous papers read before the Liverpool Medical Institution, were all characterized by sound clinical observation and a rich knowledge of the literature. At the clinical meetings of the Institution he could always be relied upon to show some rare and interesting cases, and he counted no trouble too great to make these demonstrations successful. He was an excellent teacher, and students followed his clinics with interest and profit. Carefully trained in the old school of Vienna dermatology, he recognized that treatment was, from the patient's point of view, the most important side of dermatology. His treatment was never empirical, but was based on pathology, and his success in this was great. His mature judgement saved him from the too early and indiscriminate adoption of every new and vaunted remedy; but when assured that there was good in any remedial agent he let his patients have the benefit of it. But he never allowed his appreciation for a new remedy to blind him to the virtues of the old. This attitude of mind largely contributed to his success in treatment, and to the high opinion he won from his professional colleagues. But it was for other qualities besides his great abilities as a skin specialist that he was so much beloved. He was gifted with a genial spirit and a quiet sense of humour that made him the pleasantest of companions. Kindnesses large and small were done daily by Dr. Barendt, and many a young member of the profession has had reason to feel deeply grateful to him, not only for professional help, but also for sound advice on some of those difficulties that beset the path of the newly fledged practitioner. A devoted father, he found his greatest happiness in his family circle, or in the company of a few chosen friends. He was universally liked, even by those who differed from him profoundly on professional matters or in politics. In a material age he preserved a cheerful idealism. The pursuit of wealth for its own sake, or the wild race for position or power, meant nothing to him. His aim was to serve his day and generation faithfully, and few men have achieved that ambition so completely. He will be greatly missed in Liverpool by a large circle of patients, rich and poor, and by all his professional colleagues. It seems only fitting that one who loved the classics should have a Latin epitaph. There are many that spring to mind—each in its way appropriate—but for him a timeworn one seems best, for of Barendt it was wholly true: *Integer vitae, scelerisque purus.*

Lieut.-Colonel William Creyk, R.A.M.C. (ret.), died at Penge on August 19th, aged 87. He was educated at Aberdeen, where he graduated M.B. in 1860, taking the L.R.C.S.Ed. in 1861. He entered the army as assistant surgeon on April 14th, 1863, became surgeon major on April 28th, 1876, and retired on May 16th, 1888. During the old regimental days he served in the 4th Foot, the King's Own Royal Lancaster Regiment, from 1865 to 1871, and in the Royal Artillery in 1871-72. He served in the Afghan war of 1878-80, receiving the medal.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The following have been elected to the Board of the Faculty of Medicine for varying periods: T. S. Hele, M.D., E. D. Adrian, M.D., G. S. Graham-Smith, M.D., F.R.S., and W. L. H. Duckworth, M.D., Sc.D.

At a congregation held on October 29th the following medical degrees were conferred:

M.D.—L. B. Cole.
M.B., B.Chir.—W. W. McLean, R. H. Metcalfe, A. T. Worthington.
M.B.—J. H. Hannan.

UNIVERSITY OF LONDON.

The Faculty of Medicine.

Sir Cuthbert S. Wallace, K.C.M.G., C.B., M.B., F.R.C.S., of St. Thomas's Medical School, has been elected Dean of the Faculty of Medicine for the period 1926-28.

University College.

The first of a course of four lectures on insulin was given by Dr. C. H. Best at University College, Gower Street, W.C.1, on Wednesday last. The lectures, which are addressed to students and others interested in the subject, will be continued on succeeding Wednesdays in November at 5 p.m.

UNIVERSITY OF EDINBURGH.

Address by the Principal on the Work of the Year.

After the graduation ceremony on October 23rd, when 134 degrees were conferred, including the medical degrees mentioned in our last issue (p. 811), the Principal, Sir Alfred Ewing, gave an address on some important developments in the University during the past year.

He referred to the rectorial address delivered by the Prime Minister in his last year of office as Lord Rector, at which the Earl of Balfour had presided, and expressed his gratification that, as a result of the students' organization, these distinguished visitors had received a hearing worthy of the great occasion. Another example of student leadership had been afforded at the time of the general strike when the students voluntarily formed themselves into a Students' Emergency Council, whose activities found expression in many useful deeds and had been of real service to the community; the action then taken, and the manner of it, had brought the student body into a higher level of public esteem than it had perhaps ever occupied before.

After an allusion to the celebration in June, 1926, of the bicentenary of the foundation of the Medical Faculty, the Principal went on to instance, among the important developments of different departments, the provision of the laboratory in connexion with the chair of surgery, which had been opened at the bicentenary celebration. This had been carried out with the assistance of the Rockefeller Foundation, which was providing also material assistance towards the erection of a clinical laboratory at present being built in the infirmary grounds. A new radiology department had been opened by the managers of the Royal Infirmary in that institution, which he believed had no rival anywhere, and in connexion with this the University had appointed a lecturer in radiology. Recent gifts had made possible the development of a department of animal breeding, and it was hoped that the University might soon be in a similar position with regard to the zoology department, for which a site had now been definitely selected. Minto House in Chambers Street had recently been acquired by the University to provide accommodation for the department of English and modern languages and so relieve the congestion in the Old Quadrangle.

An important aspect of university life was the number of matriculated students. There had been great congestion in all the universities of the country after the war, and in Edinburgh this had reached its height in the session 1920–21, when there were nearly 5,000 matriculated students. A gradual fall, amounting to between 200 and 250 a year, had thereafter taken place, until the number was approximately 4,000, about which it now appeared to remain steady. Last year the total number had been 3,953. There were indications, he thought, that the numbers were beginning to rise again. It was too early in the session to speak with confidence regarding the coming year, but the entrance of first-year students to date considerably exceeded the entrance of first-year students at the same date last year. There had been a very remarkable and sustained rise in the Faculty of Arts, which was now half as large again in numbers as it was in the pre-war years. Medicine and science had both experienced a rush after the war and then something of a slump, but even now science had one and a half times as many students as in pre-war years. An interesting feature in the statistics was the largely increased number of women who entered. Last year, out of 3,953 students, 1,191 had been women, and in the Faculty of Arts more than half of the whole number were women. In the present year the number of students who had already matriculated showed a proportion of one woman to two men.

UNIVERSITY OF DUBLIN.

School of Physic, Trinity College.

The following candidates have been approved at the examination indicated:

Final Examination.—*Part I (Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology).*—*G. C. Dockeray, S. Beggs, R. H. Bland, D. M. Brink, J. R. Hanna, H. E. Knott, I. W. Pigott. *In Completion:* G. Q. Chance, E. M. Gamble, J. Horwich, E. K. Malone, C. E. G. Nunns.

* Passed on high marks.

NATIONAL UNIVERSITY OF IRELAND.

At the yearly meeting of the Senate, held on October 29th, the Senate had under consideration the reports of the examiners upon the results of the autumn examinations, and awarded passes, honours, etc., in connexion therewith.

The following awards were made in connexion with the Medical Faculty:—*Dr. Henry Hutchinson Stewart Medical Scholarships:* (1) Anatomy and (2) Physiology, J. F. O'Dea; *Dr. and Mrs. W. A. Browne Gold Medal and Prize*: Mary B. O'Mahony (gold medal), Lily M. McDermott (prize).

The Senate decided that a special final medical examination should be held in January, 1927, in University Colleges, Dublin, Cork, and Galway, provided that not fewer than seventy-five candidates enter and pay the special entry fee of £5 on or before November 18th.

The Senate also decided that the Dr. Henry Hutchinson Stewart Scholarships in Medicine shall be offered for competition in 1927.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An ordinary quarterly comitia of the Royal College of Physicians of London was held on October 28th, at 5 p.m., when the President, Sir John Rose Bradford, was in the chair.

Membership.

After the minutes of the Censors' Board had been read, the following candidates were admitted as Members:

K. B. Aikman, M.D.Camb., R. D. Alexander, M.B.Camb., H. Cohen, M.D.Liverp., W. R. F. Collis, M.B.Camb., H. A. Colwell, M.B.Lond., Surg.-Com. J. G. Danson, R.N., M.D. Aberd., I. G. Davies, M.B.Lond., Dinshaw H. Dudha, M.D.Bombay, V. Feldman, M.B.Lond., G. Fletcher, M.D.Glasg., C. S. Hallpike, M.B.Lond., G. E. R. Hamilton, M.B.Lond., P. M. D'A. Hart, M.B.Camb., R. B. Hawes, L.R.C.P., R. Jeremy, M.B.Syd., E. H. Kettle, M.D.Lond., J. F. Landreth, M.B.New Zealand, O. C. Moller, M.B.New Zealand, A. T. Nankivell, M.D.Lond., C. E. Newman, M.B.Lond., A. Pool, M.B. Liverp., A. D. Porter, M.B.Camb., E. A. B. Pritchard, M.B.Camb., E. Scott, M.B.Liverp., S. R. Simaika, L.R.C.P., Sir E. S. Taylor, Bt., O.B.E., M.D.Camb., P. B. Wilkinson, M.B.Lond., L. J. Witts, M.D.Manch.

Licences.

Licences to practise were granted to the following 185 candidates who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Examining Board in England:

Y. Abdel-Messiah, A. Ali, G. E. Aling, J. H. Anderson, G. F. Andrews, M. C. Andrews, H. W. Applin, J. M. Ashton, H. Awrounin, L. G. Backhurst, *Grace Batten, *Rosie B. Becker, M. Behr, *Florence K. Bibby, G. Bindman, G. W. Black, E. J. C. Bockett, E. S. Bolton, *Susanna M. Bornman, J. W. Bottoms, H. W. Bowen, E. Bowen-Jones, H. Bown, F. W. Bradley, J. G. Brandon-Bravo, W. A. Briggs, M. Bryer, R. H. Burns, *I. Caley, C. J. N. Cameron, S. Carnofsky, J. C. D. Carothers, W. H. Carr, J. R. B. Chatterton, J. A. Cholmeley, S. L. A. Clarke, P. F. Cluver, A. Cohen, W. K. Coombes, D. H. Couch, H. T. Cox, E. S. Curtiss, R. P. P. Davies, *Winifred M. De Kok, A. C. De Sousa, A. A. Digges la Touche, T. A. J. M. Dodd, J. Dywlen, *Phyllis M. Edgar, H. M. Elliott, E. A. R. Enuion, H. K. Evans, *Leonora S. Evans, S. H. Evans, W. G. Evans, A. W. Fawcett, *Dorothy D. Forster, A. E. Fraser-Smith, E. G. Frewer, A. H. Gale, *Margaret E. J. Gashion, J. B. George, *Dorothy Gibbs, R. M. Gilchrist, H. K. Goadby, *Myrtle S. M. Goldrich, J. A. Gornall, J. Gough, R. A. Graff, F. C. Grant, T. L. Griffiths, H. L. Gulati, G. S. Hall, A. C. de R. Helme, G. F. Henderson, G. R. N. Henry, V. V. H. Hoakai, O. Hooper, H. O. Hopkins, F. S. Hubbersty, T. C. Hunt, C. B. Huss, A. B. Hyman, R. Illingworth, A. J. Johnson, E. C. Johnson, *Louise A. Johnson, C. W. Jones, W. T. Jones, F. E. Kingston, F. Knoyle, L. C. Lancaster, F. R. Langmaid, C. J. Laviers, H. W. Lewis-Philipps, D. G. Lloyd, *Flora W. Lloyd, G. E. Macdonald, J. R. Macdougall, J. McFadzean, W. H. S. McGregor, W. McLaren, H. E. McLaughlin, W. N. Maclay, E. H. Madge, P. C. Mallam, S. M. Mallick, C. Mani, H. Mannington, J. N. Martin, M. N. Menon, R. J. Milbank, *Barbara H. Mitchell, *Mary S. Mitchell, E. R. W. Monsglaser, H. W. Morck, E. W. T. Morris, T. W. Morris, E. F. Morton, B. E. T. Mosse, B. G. S. Mudali, E. A. Nicoll, E. F. D. Owen, G. E. Parker, N. D. Patel, L. L. P. Patterson, R. H. Pearce, *Janet R. Phillips, R. A. Phillips, C. B. Picken, H. A. Pim, *Winifred A. L. Pollock, H. W. A. Post, *Margaret M. Price, *Lesley M. C. Probyn, O. L. Prosser, P. N. Ray, A. M. Richards, *Hilda M. Richards, A. H. Richardson, J. H. O. Roberts, D. A. Robertson, A. P. Ross, A. W. L. Row, G. P. Roxburgh, J. A. Rushworth, B. F. Russell, N. A. Saif, F. G. A. Shaheed, G. C. Shepherd, H. L. Shimmin, D. P. Simpson, J. W. Simpson, B. A. Smith, H. Smith, R. S. Smith, E. B. Smithard, W. R. C. Spicer, *K. Stephen, C. E. R. Stephenson, C. L. Stote, R. Stuppel, F. J. Swinton-Escher, H. Syed, W. K. Targett, J. E. Teale, J. G. T. Thomas, A. R. Thompson, O. L. Truscott, C. I. Tuckett, F. B. Turner, *Aimée A. L. Vail ant, L. S. P. Wakeley, A. C. R. Walton, *Kathleen M. Ward, N. Wassif, R. Watson, T. C. S. Webb, W. N. Welinker, *Beatrice A. Wilkinson, L. S. Williams, A. A. Wilson, A. G. Wilson, C. S. Wise, A. H. Wortman.

* Under the Medical Act, 1876.

Medico-Legal.

TWO MEDICAL MEN CHARGED WITH MURDER.

A coroner's jury, at Bamber Bridge, near Preston, on October 29th, after an hour's retirement following an inquiry lasting two days into the death of Norah Elizabeth Marmion, aged 24, the daughter of a Penmaenmawr quarry owner, found that the deceased died from shock caused by criminal abortion performed by Dr. Arthur Stuart Holden and Dr. Frederick Langton Webster, and that Mrs. Constance Mary Holden and Major William Edward Blackburne and Mrs. Helen Blackburne were aware that criminal abortion was being meditated.

Thereupon the two medical men were charged with murder, and the other three persons with being accessories, all being committed for trial on a coroner's warrant at the next Manchester Assizes. In answer to the charge, Dr. Holden said: "I am not guilty of any such charge"; Dr. Webster said he had nothing to say; Mrs. Holden and Major Blackburne both said "I am not guilty."

It appeared that the deceased left the home of her sister at West Cliff, Preston, on October 7th, presumably to play bridge at Dr. Webster's house at Bamber Bridge, and later the same night Dr. Webster informed the police of her death, stating: "Dr. Holden has had an operation on a lady at my house to-night, and she has died under the anaesthetic."

Mrs. Elizabeth Smith, in her evidence, said she did the cooking and her husband cleaned the surgery at Dr. Webster's house. On October 7th she retired to bed shortly before 8 o'clock because she was not well, Dr. Webster being in his surgery with some patients at the time. She overslept the next morning, and on going downstairs at 11.30 a.m. she saw a note on the door of the telephone room in Dr. Webster's handwriting: "Smith, do not go in without consulting me." Her husband said to her: "Don't go in that room; there's a woman dead in it."

Alexander French, a single man, employed with a firm of sanitary engineers at Liverpool, in his evidence, said about twelve months ago the deceased told him she was engaged to a doctor in Waterloo. The engagement lasted about six months, and was then broken off. The deceased spoke to him about her condition on October 2nd, but did not allege that he was the cause of it. He offered to marry her, but she refused. The first he knew of her death was on the Friday morning, when Major Blackburne, her brother-in-law, telephoned the news to him.

Sir Bernard Spilsbury, who conducted a *post-mortem* examination, said that in his opinion death was due to shock consequent upon and following immediately after the use of an instrument; she was pregnant, probably two months.

The deputy coroner (Colonel H. Parker), in his summing up to the jury, said the deceased was perfectly well when she went to Dr. Webster's house, and, according to Sir Bernard Spilsbury, what took place there was criminal. They had to consider whether Dr. Holden or Dr. Webster was responsible, and, having regard to the facts, he did not see how they could separate the one from the other. Further, they must consider the responsibility of any other persons.

The jury returned a verdict as stated.

A SPECIALIST'S FEES.

Mr. E. J. Deck, M.R.C.S., L.R.C.P., of Welbeck Street, London, succeeded before Mr. Justice Roche and a special jury, in the King's Bench Division of the High Court of Justice, on October 27th and 28th, in establishing his claim against Captain A. C. Godwin Smith for the sum of £65, being fees for medical attendance.

The defendant pleaded that he consulted Mr. Deck for swellings on the side and back of his neck, but that the attendances were of no value to him by reason of the negligence of Mr. Deck, who, he alleged, wrongly diagnosed his ailment and directed treatment—ultra-violet rays and extraction of teeth—which injured his health. For such alleged negligence he counter-claimed damages.

The plaintiff, by his reply, denied negligence.

Mr. H. F. Dickens and Mr. J. M. Symmons appeared for the plaintiff; Mr. H. J. Wallington appeared for the defendant.

The Plaintiff's Case.

Mr. Dickens said Mr. Deck before the war practised in New Zealand, and during the war he served with the New Zealand Army Medical Service. Becoming an authority on the ultra-violet ray treatment, which was coming into favour with medical men for its healing properties, he, after the war, equipped his consulting room in London with the necessary apparatus, and his whole-body ray bath was the first installed in England. Mr. Deck had personally administered the rays 25,000 times. On February 11th, 1925, the defendant was sent to him for consultation as to swellings at the side of the face and neck and back of the neck. He formed the opinion that the swelling of the face was an infection of the glands due to poisoning in the system, and an *x*-ray examination revealed that the condition of the defendant's teeth and gums was a sufficient cause, and between July 1st and 9th Captain Smith's teeth were extracted by Mr. Byrne, a dental surgeon, in Welbeck Street. Captain Smith's condition improved, and the swelling at the back of the neck decreased. In August he spent a holiday in Cornwall, but on his return in September the swelling at the back of the neck was found to have increased. Blood tests showed that there was no poisoning, and it became clear that he was suffering from a tumour. The plaintiff advised him to undergo an operation, but Captain Smith was unwilling. Later, Captain Smith wrote that he had consulted Mr. Donald Armour, who had diagnosed the complaint as a tumour. Mr. Armour operated, removed the tumour, and Captain Smith recovered. When, however, the plaintiff demanded his fees, Captain Smith merely replied that if Mr. Deck desired to go into court he should welcome the opportunity of asking him a few questions.

Mr. Deck gave evidence in support of his counsel's opening. He had told Captain Smith he thought the swelling at the back of the neck was due to a tumour, but that in view of the history of varying size there was an element of doubt. Captain Smith was eager to have his treatment because he wanted to avoid an operation. In cross-examination, Mr. Deck said if the rays were applied directly there was no reason why they should provoke growth of the tumour as they did not act on fat, but through the blood stream. He did not think eight months an excessive time for him to take in making a definite diagnosis in this case. Captain Smith never said he would like a second opinion.

Mr. Ferdinand Byrne, dental surgeon, said the radiogram taken of Captain Smith's mouth showed marked absorption of the bones surrounding the teeth; in extracting the teeth he acted on his own, and not on Mr. Deck's opinion. Captain Smith still owed his fees for the dental treatment.

Mr. Eric W. Pedley, dental radiologist, who *x*-rayed Captain Smith's mouth, agreed that the extraction was necessary.

Sir Alfred Fripp spoke of Mr. Deck as one of the best known specialists in ultra-violet ray treatment, and said he considered the fees charged very reasonable.

Mr. Justice Roche: The moderation of most doctors with regard to fees always surprises me.

Sir Alfred Fripp said the rays had proved themselves valuable in cases where the reduction of inflammatory swelling was desired.

The Defendant's Case.

Mr. Wallington, for the defendant, said the truth was that, as Mr. Deck had told Sir Alfred Fripp, he regarded the case as a very interesting one, and he was very eager to cure it with the ultra-violet rays, in which he specialized. It was not until September that Mr. Deck suggested that the swelling at the back of the neck was a tumour, and the operation, which would have been simple in February, 1925, was not so simple in the following October.

Captain Smith bore out his counsel's statement.

Mr. Donald Armour, F.R.C.S., who operated for the tumour, in cross-examination, agreed that the diagnosis of the tumour was not necessarily as easy in February as in October.

Mr. Dickens: If a doctor were in doubt, would it be proper to attempt to reduce swelling by ultra-violet ray treatment?—Yes.

Mr. Dickens: And, if the swelling subsided, the doctor would be justified in continuing the treatment?—Yes.

The jury returned a verdict for the plaintiff, and judgement was entered for him on the claim and counter-claim, with High Court costs.

The Services.

BELFAST UNIVERSITY SERVICES CLUB.

The eighth annual armistice dinner of the Belfast University Services Club will be held in Thompson's Restaurant, Donegal Place, Belfast, on Thursday, November 11th, at 8 p.m. All past Queensmen who served during the great war in His Majesty's forces are invited to attend, and those who wish to do so should signify their intentions to the Honorary Secretaries, Services Club, The University, Belfast, before November 10th. The cost of the dinner (exclusive of wines) will be 12s. 6d.

On the morning of November 11th, at the conclusion of the "two minutes' silence," a wreath from the club will be laid at the base of the war memorial in the University, and all past and present Queensmen are invited to be present.

DEATHS IN THE SERVICES.

Surgeon-General William Budd Slaughter, Army Medical Service (ret.), died at Colchester on October 22nd, aged 77. He was born at Farningham, Kent, on December 31st, 1848, and was educated at St. Thomas's Hospital; he took the L.S.A. in 1870, and the M.R.C.S. in 1871. He entered the army as assistant surgeon on March 30th, 1872, and attained the rank of colonel after exactly thirty years, became surgeon-general on June 21st, 1905, and retired on December 31st, 1908. He served in the Afghan war of 1878-80 (medal), and in the Tirah campaign on the North-West frontier of India in 1897-98 (medal with clasp).

Colonel Bertal Hopton Scott, C.M.G., Army Medical Staff (ret.), died at Ealing on October 24th, aged 63. He was born at Gringley-on-the-Hill, Notts, and was the son of the Rev. G. H. Scott, vicar of that parish. He was educated at Toronto University, where he graduated M.D. and C.M. in 1883, and at the London Hospital, taking the L.R.C.P.Ed. in 1884, the M.R.C.S. in 1885, and the D.P.H. at Cambridge in 1902. He entered the army as surgeon on February 5th, 1887, became colonel in the long promotion list of March 1st, 1915, and retired on September 10th, 1919. He served in the Chitral campaign of 1895, with the relief force, receiving the frontier medal with a clasp; in the operations in Sierra Leone in 1898-99, the Karene expedition, when he was severely wounded in the chest and had his thigh fractured, and received the medal with clasp; in the recent war of 1914-18 he was thrice mentioned in dispatches (1915, 1916, and 1917) and received the C.M.G.

At the meeting of the Pharmaceutical Society of Great Britain at 17, Bloomsbury Square, W.C., on Tuesday, November 9th, at 8 p.m., a paper on "Some methods of biological assay" will be read by Dr. J. H. Burn, director of the society's pharmacological laboratories. Medical friends of members and student-associates will be welcomed.

The annual dinner of the West Riding Association of Graduates of the Edinburgh University will be held at the Midland Hotel, Bradford, on Wednesday, November 17th, at 7.15 p.m. Professor Kemp Smith, dean of the faculty of arts, will be the guest of the evening. Further information can be obtained from Dr. Donald Watson, 33, Manor Row, Bradford.

The annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel, on Thursday, November 18th, at 7.30 p.m. Ladies are invited, and members, or candidates nominated for election, are asked to give early notice to the Executive Secretary of their intention to be present, with the names of their guests. A payment of 12s. 6d. for each ticket should be made with applications sent before November 15th; after that date the cost of tickets will be 15s. each.

The Continental Medical Graduates' Association (formerly the Brussels University Medical Graduates' Association) held its annual dinner at the Langham Hotel, on October 28th, with the president, Dr. H. Fielden Briggs, in the chair. In proposing prosperity to the association Sir Henry Jackson, M.P., M.B., coupled the toast with the name of the president, who, in his reply, gave an outline of its history and indicated the objects to be attained in the future. These, Dr. Fielden Briggs explained, were scientific and political; under the former heading would come the winter meetings, at which eminent men would be asked to read papers, and congresses in the summer to be held at various Continental cities; with regard to the latter, they would press for reciprocity of medical practice between this country and the European nations. Although millions of English tourists and residents were on the Continent, they were unable to be attended by their own British medical man because they were prohibited from practising in those countries. Mr. Hugh Edwards, M.P., agreed with the president's remarks, and instanced his own experience on the Continent, when, being ill, he was unable to avail himself of the services of his own medical adviser because it was useless to send to England for him as he would not legally be allowed to attend him. Dr. Leonard Williams, in a humorous speech, proposed the toast of "The Ladies," and Dr. Justina Wilson, in replying, contrasted the reception given to post-graduates on the Continent and that given in this country. Sir Thomas Carey-Evans proposed "Kindred Societies," and Mr. Mortimer Woolf, president of the Hunterian Society, and Dr. Ernest Young, president of the Chelsea Clinical Society, responded. The president's health was proposed by Dr. Campbell McClure, and Dr. Fielden Briggs, in replying, paid tribute to the honorary secretary, Dr. A. D. Woolf, for his arduous labours on behalf of the association.

At the first general meeting of the League of National Life, held in the Caxton Hall, London, on October 29th, with Lord Fitzalan in the chair, the president, Dr. F. J. McCann, said that it was felt that contraception was becoming a great national problem, and that accordingly the league had been formed to influence public opinion along what they believed to be the correct lines, and to foster the perpetuation of family life. After a large experience Dr. McCann affirmed that the practice of contraception should be condemned because it was physically harmful to the female. The more complete the interference with the physiological character of the act the greater the harmfulness. The continued use of contraceptives had an important relationship to some of the major and many of the minor ailments whose cause was regarded as obscure. Dr. Halliday Sutherland (honorary secretary) said that the immediate policy of the league was to have the various fallacies of birth prevention exposed by experts—ethical, medical, statistical, and sociological. Dr. Letitia Fairfield said that perhaps the chief difficulty in propaganda work would be the fact that birth control was advocated as a panacea for every conceivable social evil, and those who undertook to oppose it were made to appear as reactionary or inhuman supporters of these evils.

Dr. F. J. Baildon, well known to many members of the British Medical Association as a representative and committeeman, has been elected for the fourth time President of the Southport Society of Natural Science. At the opening meeting of the thirty-seventh session of the society on October 21st, at which the Mayor and Mayoress of Southport attended, Dr. Baildon gave his presidential address on "Some pioneers and prophets of science." In this he spoke of the great development which took place during the war in scientific matters, which compensated to some extent for the losses suffered. He traced the progress in art and science and medicine from the days of the Egyptians, Greeks, and Romans, through the Middle Ages and down to the present time. His conclusion was that the development during the last fifty years in science and its application to life in commerce and industry has been greater than in all the preceding ages.

Questions of importance concerning the future of British spas were discussed at the autumn meeting of the British Spa Federation, held recently in London, and attended by representatives of all the leading spas in Britain. The organization is being developed for dealing with insured persons, so that when spa treatment for rheumatic diseases is made an additional benefit under the National Health Insurance scheme the patients may obtain the best results without any confusion or interference with the ordinary visitors to the spas. Other subjects discussed were the extension and co-ordination of scientific research into the chemical and physical properties of the mineral waters of Great Britain, and the relation of the spas with the "Come to Britain" Movement and other efforts towards meeting foreign competition.

An *x*-ray apparatus and a new orthopaedic pavilion have been installed at the Warrington Infirmary. The *x*-ray apparatus, which cost £400, was presented by the employees of Messrs. Pearson and Knowles as a memorial to the late Mr. Gordon H. Fraser, managing director. The orthopaedic pavilion, which cost £1,800, is fully equipped with gymnastic apparatus and appliances for the administration of artificial sunlight treatment. It was opened by Mr. H. Wade Deacon, vice-president of the council of the British Hospitals Association and chairman of the board of management of the Liverpool Royal Infirmary.

Dr. R. M. Littler, on his retirement from the post of medical officer to the Southport Post Office, has been presented by the staff with a travelling clock.

During the week ending September 25th 6 fatal cases of plague, 79 cases of cholera with 25 deaths, and 27 cases of small-pox with 10 deaths were reported by the Far East Bureau at Singapore, and during the week ending October 2nd 47 cases of cholera with 10 deaths, and 21 cases of small-pox with 11 deaths were reported.

Professor Henschen of St. Gall has been appointed successor to the late Professor Holtz in the chair of clinical surgery at Basle, and Professor Ziemcke of Kiel has been appointed professor of medical jurisprudence at Breslau.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the British Medical Journal must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the Journal, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the British Medical Journal are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the British Medical Journal, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediaecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

Chilblains.

"C. P. J." asks for suggestions in the treatment and prevention of chilblains in a patient who suffers every year with the advent of frosty weather, both on hands and feet. She takes plenty of exercise throughout the year, and also takes cod-liver oil and extract of malt, together with calcium lactate gr. xv t.d.s., but in spite of this the chilblains recur and persist. Local treatment consists in the application of counter irritants—iodine,

Standing Counsel.

Mr. F. H. Maugham, K.C., was appointed senior standing counsel on the nomination of the President, vice Mr. A. C. Clauson, K.C., appointed a Judge in the High Court of Justice.

The Richard Bright Celebration.

It was resolved that a conversazione should be held at the College in 1927 in honour of the centenary of the publication of Richard Bright's book, the date to be fixed so as to coincide with the celebration at Guy's Hospital.

Final Conjoint Examination.

On the motion of Dr. Fairbairn, it was resolved that the Committee of Management be asked to report to the College on the efficiency of the examination in midwifery and diseases peculiar to women in the Final Examination of the Conjoint Board.

Committee of Management.

Dr. H. L. Tidy was elected a member of the Committee of Management in place of Sir William Hale-White, who has resigned after eight and a half years of service. Dr. Raymond Crawfurd, who retired in rotation, was re-elected.

Home Office.

Two communications were received from the Home Office, the one inviting the College to lay its views before the Committee on the Poisons and Pharmacy Acts, and the other inviting the College to nominate a representative to serve on the tribunal for England and Wales under the Dangerous Drugs Act. Sir William Hale-White was nominated, with Dr. J. Fawcett as his substitute to act if necessary.

Dr. Nathaniel Johnstone.

Dr. A. J. Hall of Sheffield was thanked for the gift of a photograph of Dr. Nathaniel Johnstone, a former Fellow of the College, together with some biographical notes.

Places of Study.

In 1918 certain places in Austria and Germany were removed from the list of recognized places of study, graduates of which were admissible to the final examinations. Application has been received for their restoration. The Committee of Management has now received from the German and Austrian embassies assurances that British doctors are admissible to the Staats examen in these countries by the recognition of their studies and examinations in Great Britain. The following places were recognized:

Austria: Graz, Innsbruck, Vienna. *Czecho-Slovakia*: Prague. *Germany*: Berlin, Bonn, Breslau, Erlangen, Freiburg, Giessen, Gottingen, Greifswald, Halle, Heidelberg, Jena, Kiel, Königsberg, Leipzig, Marburg, Munich, Tübingen, Würzburg. *Hungary*: Budapest. The University of Hamburg was added to the list of recognized German universities.

Science Abstracts.

A report was received from Lord Dawson on his conference with the Medical Research Council in regard to the continuation of the publication of the *Science Abstracts*.

Donations to the Library: Portrait of Sir R. Douglas Powell.

Books and other donations presented to the library during the past quarter were received and thanks returned to the donors. The replica of the portrait of the late Sir Richard Douglas Powell, Bt., a former President of the College, given by the Dowager Lady Powell and by Colonel Sir Douglas Powell, was on view.

Medical News.

AT the annual meeting of Fellows and Members of the Royal College of Surgeons of England, to be held on Thursday, November 18th, at 3 p.m., a resolution will be moved by Dr. H. Wansey Bayly and seconded by Dr. Redmond Roche, on behalf of the Society of Members of the College, affirming again the desirability of admitting Members to direct representation upon the Council, and requesting the Council to take a postal vote of Fellows and Members on the general principle. The new president of the society is Dr. Ernest E. Ware, and the honorary secretary is Dr. S. C. Lawrence, 106, Richmond Park Road, Bournemouth. In a letter accompanying the notification Dr. Lawrence draws attention to the fact that the Council of the College has not yet altered By-law xxvi forbidding women to attend or vote at meetings, although the new Supplementary Charter, which grants women members the same privileges as men, was signed by His Majesty last July.

ON November 11th, at 5 p.m., at the house of the Medical Society, 11, Chandos Street, W.1, Mr. Arthur E. Giles will give the sixth lecture in the series arranged by the Fellowship of Medicine on emergencies; he will speak on emergencies in gynaecological practice. On the same date, at 1 p.m., Mr. Maurice Whiting will give a demonstration in clinical ophthalmology at the Royal London Ophthalmic Hospital. Mr. L. C. Rivett will give a clinical demonstration at the Chelsea Hospital on November 12th, at 2 p.m. The lecture and demonstrations are open to medical practitioners without fee. The Royal Waterloo Hospital will hold a course in medicine, surgery, and gynaecology from November 15th to December 4th, with special reference to endocrine deficiency, diseases of the blood, thyroid gland, respiratory system, stomach and intestines, and modern methods of laboratory diagnosis. From November 15th for one month there will be a clinical course in dermatology at the St. John's Hospital, including two lectures a week, and also a series of practical demonstrations in pathology if desired. A week's comprehensive course in diseases of the rectum will start at St. Mark's Hospital on November 22nd, and will include the use of the sigmoidoscope. For four weeks from November 22nd there will be a course at the West End Hospital for Nervous Diseases, 73, Welbeck Street, W., commencing at 5 p.m. each day. A course for general practitioners will be provided by the London Temperance Hospital from November 29th to December 11th, and courses in obstetrics are available at Queen Charlotte's Hospital and the City of London Maternity Hospital; practical courses in anaesthetics can also be arranged. Copies of all syllabuses and of the general course programme may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE Post-Graduate Hostel meeting to be held at the Imperial Hotel, Russell Square, W.C.1, on Tuesday, November 9th, at 9 p.m., will be addressed by Dr. S. Wright on the output of the heart in health and disease. On Thursday, November 11th, at 9 p.m., Mr. H. A. Harris, F.R.C.S., will discuss epiphyses. All medical practitioners are welcome. Dinner will be served at 8 p.m. (price 5s.) and coffee and biscuits at 10 p.m. (price 6d.).

THE National Council for Mental Hygiene has arranged a public meeting at the house of the Royal Society of Medicine on November 17th, at 4.45 p.m., when the chairman will be Lord Southborough, and an address will be given by the Right Hon. H. P. Macmillan, K.C., chairman of the Royal Commission on Lunacy and Mental Disorder, 1924–26. The third report of the National Council contains references to the report of the Royal Commission and to the inquiry into the value of psycho-analysis as a method of treatment. The latter subject was referred to a subcommittee for report, but it is announced that no decision has yet been reached. Three subcommittees of the council during the year under review dealt with the prevention and early treatment of mental disorder; the care, after-care, and treatment of the insane; and mental deficiency and crime. The evidence submitted by Dr. W. A. Potts to the Home Office Committee on the treatment of young offenders is published as an appendix to the report.

PROFESSOR W. W. C. TOPLEY will deliver the Harben Lectures at the Royal Institute of Public Health in the lecture theatre of the Institute (37, Russell Square, W.C.) on November 15th, 18th, and 22nd, at 4 p.m. on each day. His subject will be quantitative experiments in the study of infection and resistance; no tickets of admission are required.

A SERIES of three lectures on the history of medicine will be given at the University of Durham College of Medicine, Newcastle-upon-Tyne, during the academic year 1926–27, by Dr. Charles Singer, of University College, London. The first lecture will be delivered on Friday, November 19th, at 4.45 p.m. All medical practitioners in the neighbourhood are invited to attend.

A FURTHER extraordinary general meeting of the Medical Sickness, Annuity and Life Assurance Society was held at the offices of the company, Lincoln House, 300, High Holborn, W.C.1, on November 1st. The resolution approving the new Articles of Association of the society adopted at the meeting on October 11th (BRITISH MEDICAL JOURNAL, October 16th, p. 693) was unanimously confirmed.

AT a meeting of the Hunterian Society of London in the Cutlers' Hall, Warwick Lane, E.C., on Monday, November 15th, at 8.45 p.m., a discussion will be held on medicine and the press. The speakers will include Sir Humphry Rolleston, Bt., Dr. Graham Little, M.P., Dr. Leonard Williams, and prominent persons connected with the newspaper press. Fellows may bring non-medical guests.

THE annual dinner of past and present students of the Royal Dental Hospital of London will be held at the Trocadero Restaurant on Saturday, November 20th, at 7 o'clock, with Mr. W. H. Dolamore in the chair. The staff will hold its annual clinical "At Home" at the hospital, Leicester Square, on the afternoon of the same day at 2 o'clock. Cases of special clinical interest which have come under observation and treatment during the past year will be shown and demonstrations given. The Medical Committee extends an invitation to any medical practitioners who may like to attend.

THE first of the Malcolm Morris memorial lectures will be given in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W.1, on November 15th, at 5.15 p.m., by Professor H. J. Fleure, who will speak on racial characters of the human skin and racial types in relation to health problems. The fund for the lectures, which have to deal with dermatology and public health in alternate years, has been transferred by the Memorial Committee to the Chadwick Trustees for administration.